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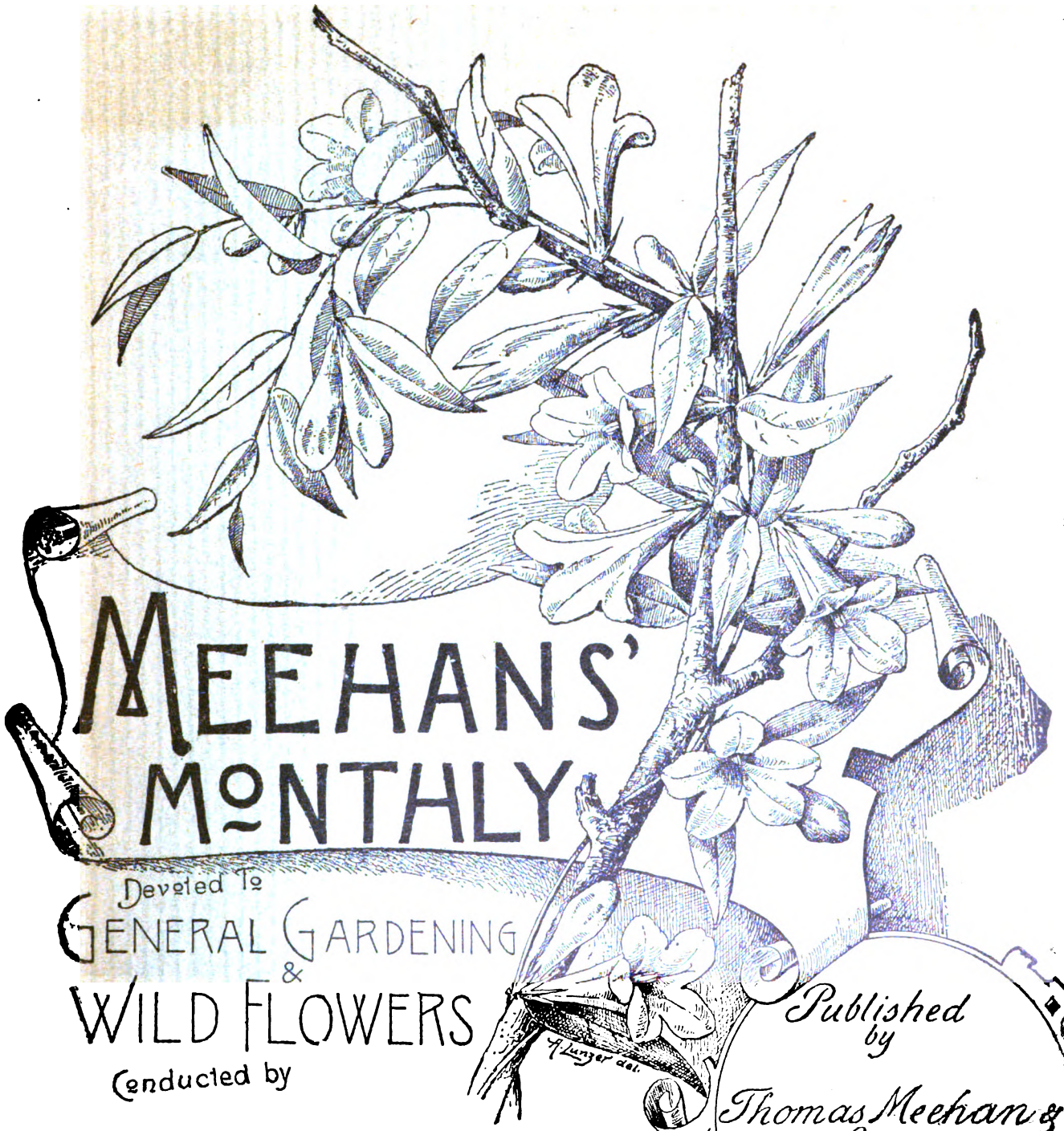

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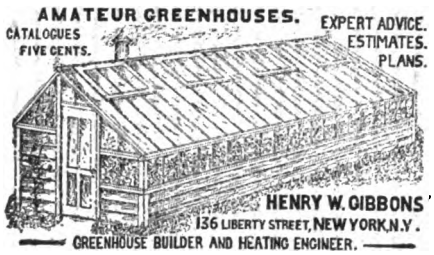

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NATURAL ORDER, COMPOSITÆ.

HELIANTHUS LENTICULARIS, Douglas.—Stalk erect, hispid; leaves alternate, petiolate, ovate, attenuate, towards the apex acuminate, three-nerved, serrate; heads large, slightly drooping; peduncles terete; involucral scales spreading, oval, acuminate, on the back scabrous; palea trifid; achenia two-awned. De Candolle's *Prodromus*; see, also, Watson's *Botany of Clarence King's Expedition*.

Within the past quarter of a century, botanists have come to regard this plant as the parent of the common Sunflower, which Linnæus named *Helianthus annuus*. They regard it as a development, or, as we should say of garden vegetables, that the Sunflower is an improvement, by garden art, from the species we are describing. Under this belief, the name *lenticularis* has been dropped, and *Helianthus annuus*, the name given by Linnæus to the cultivated form, adopted for the species. Our plant has, therefore, to be looked for, in modern botanical works, as *Helianthus annuus*. In botany, when two supposed species are proved to be identical, the earliest name should prevail. It is under this rule that the name *lenticularis*, given by Douglas, and published in the "Botanical Register," for 1825, plate 1265 (not 1225, as quoted one after another by various authors), has been dropped. In this case, however, the rule is scarcely applicable. If the common Sunflower is not a real wild flower of Peru, as supposed by Linnæus when he named it *Helianthus annuus*, but a form improved by those skilful gardeners, the ancient Peruvians, as they improved corn, potatoes, tomatoes, and other things for us, the species from which it was derived should be recognized and bear the name, though of more recent date than the garden variety bore. *Helianthus annuus* should be simply a garden variety of *Helianthus lenticularis*,—and not *Helianthus lenticularis* a variety of *Helianthus annuus*.

It is, however, the province of this work to illustrate the labors of contemporaneous botanical works, and to refer to them for full botanical details of the illustrations. *Helianthus lenticularis* would not have been retained for the plant, merely on account of the unfortunate misnomer referred to, but for the reason that it is not clear that the common Sunflower was derived from it, and it may yet come to be regarded as distinct. There seems to be characters in the disk-florets that are never apparent in the garden form,—and the characters of the leaves and the stems, though often similar, never coincide. The author has seen innumerable plants of either, in the most vigorous or most depauperate conditions, without experiencing difficulty in deciding which was which. In no case has he seen any tendency in *Helianthus lenticularis* to present us with *Helianthus annuus*. In brief, it is as probable that the common Sunflower originated from a species not yet met with in Peru, or perhaps extinct, as that it was derived from the species illustrated.

At any rate, it will do no harm to present our wild plant under the name by which it has been known for half a century. In order that students may make comparisons with the Sunflower for themselves, details of the flower to a greater extent than usual have been presented, as Figs. 1 and 2 show. It will be noted that, though the floret has characters by which it can be readily distinguished from the common Sunflower, it varies in its form according to the stage of growth. There are three rhythmic motions during the growth of the floret. The first growth ceases as soon as the tubular corolla has reached its length. After a short rest, growth is resumed and the stamens advance far beyond the corolla, when another resting stage occurs. This is represented by Fig. 1. Again resting, the next following advance forces the cloven pistil through the united anthers, carrying the pollen with it and ensuring self-fertilization.

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This stage is represented by Fig. 2. The stamens are then gradually drawn down to their original position at the mouth of the corolla tube. But another interesting change occurs at this stage. The corolla tube becomes enlarged at the apex, and is contracted below, so that what was cylindrical, in the early stage, becomes funnel-form. The lesson is that, in making comparisons with other species, the organs must be contrasted at a similar period of growth.

In regard to its general history, it may be well to give the original account of Dr. Lindley, when first describing it in the "Botanical Register," plate 1265. He says that it is nearly related to Mr. Nuttall's species, *Helianthus tubæformis;* "but the leaves are not cordate at the base, nor are the peduncles fistular and gradually thickened upwards to the base of the receptacle." It was introduced, by Douglas, in 1827. It is variable in character, and abounds over the greater part of the temperate countries situate in the interior and on the western coast of North America. "In sandy or parched ground it is a diminutive annual, scarcely a foot high; in moist or rich ground, 6 or 8 feet high. The native tribes, in the interior of North California, apply the grain to the same purpose as that for which, we are informed by Mr. Nuttall, the Indians of the Missouri apply *H. tubæformis.* They collect them in the autumn, and dry them on heated stones, or in wooden troughs with small embers, stirring them with a stick to prevent their burning. When dried, they are pounded and made into a sort of bread, which is not unpleasant."

The author of this paper was among the earliest to cross the Plains after the completion of the Union Pacific Railroad, and an interesting observation was that, although no signs of the plant's existence could be found on the prairies proper, the land disturbed by the operations of track laying abounded with the plant in many stages of luxuriance. Until that time, it was difficult to believe that seed would remain in the earth for an indefinite time, awaiting special conditions for germinating. But this was an argument for probability only. Since that time, more direct observations on other plants has satisfied the author that this popular impression in regard to the long vitality of seeds under these conditions is sound. He has had seeds, usually considered of low vital power, remain sound eighteen inches below the surface certainly for ten years, growing when brought to the surface. Though rather a coarse plant, the brilliant golden glow afforded by many acres of them in Nebraska and Colorado, in those early days of the settlement of those territories, gave rise to pleasurable sensations that will never be forgotten.

If we are to take this plant into the family of the genuine Sunflower, there would be much to say of it in connection with polite literature. In the "Botanical Register," already cited, Dr. Lindley says of its family name:—"*Helianthus* is derived from *helios*, the sun, and *anthos*, flower, in allusion to the singular phenomenon of the flowers turning to the sun in the morning, and following him through his course in the day." It is now understood that the heliotrope of Grecian mythology has been confused with helianthus. The ancient one came in bloom with the sun in his summer solstice only to find her God fleeing from her as autumn approached. *Helianthus* is, literally, Sunflower, from the striking resemblance of the flowers to conventional pictures of the sun. It does not follow the sun as intimated. And yet it probably has motion. The author has not made close observation on the Sunflower, but he has on several other species of the genus. In these, there is an upwardly curved—not laterally, and following the sun—kind of motion. In some cases, the flower lifts itself over from north-east to south-west; but in other cases from west to east, or from south northwardly. It occurs at night as well as by day. The cause of this motion, or its service in the economy of plant life, has not been satisfactorily determined; but it is certain it has no relation to the influence of the sun, nor has it any connection with the points of the compass. The Sunflower of the Greeks appears to have been the common yellow Chrysanthemum of Greece,—and this had a place in the garlands of Persian sun-worshippers.

EXPLANATION OF THE PLATE.—1. Floret in early stage, magnified. 2. Florets one day later. 3. Longitudinal section of receptacle and portion of flower stem. 4. Akene. 5. Three cleft bract from the base of the floret. 6. Shows the back portion of the involucral scales. 7. Upper portion of the flower stem. 8. Leaf from the lower portion of the stem. The plant from Kansas.

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WILD FLOWERS AND NATURE.

A MOONLIGHT SCENE.

———one low light betwixt them burned,
Blurred by the creeping mist, for all abroad,
Beneath a moon unseen albeit at full,
The white mist, like a face-cloth to the face
Clung to the dead earth, and the land was still.

TENNYSON.

SQUIRREL'S FOOD.—In the November issue of the MONTHLY attention is called to the various foods of squirrels. During the latter part of the summer and autumn, I had frequently noticed half-matured heads of sunflowers scattered near the path in the rear of the house, but thought little of it, supposing it the work of children. One day I noticed a squirrel mounting to the roof of an adjoining and little-used building, and descending the chimney with one in its mouth; and on going to the attic, there was fully a half-bushel of heads gathered into a pile for future use. To-day (Nov. 26th), I find the pile very much reduced, with plenty of fragments strewn over the floor. The fully-grown clusters were evidently too heavy,—at least a preference was shown for those not fully matured.

BESSIE L. PUTNAM.

THE PRAIRIE SUNFLOWER.—Beyond its showy flowers, the Peruvian Sunflower cannot boast of many points of beauty. In this respect, our Prairie Sunflower outranks it. Robert Browning, in fact, derides it:—

"A flower I knew,
That changes ever at the sun's approach,
And in the vain endeavour
To live his life, has parted, one by one,
With all a flower's true graces, for the grace
Of being but a foolish mimic sun;
With rag-like florets 'round a disc-like face,
Men call the flower 'the Sunflower' sportingly."

But it is useful if not beautiful. The seeds furnish food for man and beast,—and on dry plains, where more pretentious bushes fail to grow, the dried sunflower stalks alone feed the traveler's fire.

FERN VARIATION.—In Great Britain, the forty odd indigenous species of ferns have sported, under purely natural conditions, into such an immense variety of abnormal types that it would be certainly well worth while for American fern-lovers to keep their eyes well open in the States for similar phenomena. The occurrence of these sports is so peculiarly sporadic, that it is impossible to form any theory as to their genesis. Insular conditions of climate and environment generally may be a factor, and considering that no less than 1,100 distinct forms were catalogued and described by Mr. E. I. Lowe, in 1891, since when a number of new finds have turned up in a wild state, there is a good *prima facie* argument to this effect; but on the other hand, it must not be forgotten that Great Britain is the only place where variety-hunting has been the hobby of many assiduous and persevering men for nearly half a century, and that one and all of these are and have been amateurs, and not scientific or professional botanists, whose quest is new species and genera, and who, until recently, have ignored abnormalities as beneath their notice. In the writer's opinion, wherever ferns are abundant, varieties may be found if specially hunted for—that is, if the masses of normal plants be individually examined.

True, now and again it happens that a "find," especially in districts virgin to the fern-hunter, may be a huge and conspicuous plant, as in one of my own discoveries, when a shoulder-high bush of *Lastrea montana cristata gracile*, with thirty-three crowns, met my gaze, by a streamside in Dartmoor, and required two men plus a horse and cart for its removal. On the other hand, however, the majority are more or less hidden by their often robuster companions, and only betray their existence by the tip of a frond. The writer's first find was of this class—a remarkable form of *Blechnum Spicant* (*B. s. concurrens*, Druery). This has the fronds evenly narrowed to about one-third of an inch, the side divisions being like small scallop shells. In this case, only a

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frond tip peeped out of a mass of small, normal plants in a stone-dyke; but following this up, six were found, all radiating from same centre, a completely true plant which gives perfectly true progeny when sown.

I fully appreciate the argument which has been expressed in the *Fern Bulletin* that, in the States, the vast area and manifold conditions of climate render it possible to find absolutely new species which, in a well-hunted country like this, is scarcely conceivable; but on the other hand, there are hosts of people who may be fern lovers, but whose hunting area is small, and yet furnished abundantly with well-known species. For such, the hunting for varieties is always open, and the discovery of a thoroughbred find, *i. e.*, a beautifully symmetrical, distinct type is, as I can personally testify, a splendid reward for the time and trouble involved.

So far, despite the fact that many of our species are common to both countries, the "finds" in the States are extremely few; yet crested forms of *Athyrium filix-foemina*, and even of *Cystopteris fragilis*, are reported. Finds of the first were sent to me and were thoroughbred; while the latter has only afforded one crested type on this side, despite its abundance. A crested form of *Deunstaedtum* (?) is also reported to me by Mr. W. S. Moscow, and a truncate-thorned form of *Phegopteris hexagonoptera*. Some years ago, a curious sport of *Struthiopteris* was introduced from the States with, as I recollect, almost simple, and curled pinnæ; but this, I fear, has become extinct, on this side, being more curious than beautiful. These discoveries, sparse as they are, serve to establish the fact that American ferns do vary on similar lines to ours; and that, therefore, assiduous search may be repaid. Our common *Polypody* (*P. vulgare*) is, I understand, abundant in some places. Here this has afforded, under absolutely wild conditions, some marvellously distinct types far and away more beautiful than the normal. I, myself, possess about thirty-six varieties, chief of which are six distinct plumose forms in which the frond is transformed into almost a tripinnate one of very papery foliose character and extremely handsome. We have heavily-tasselled forms of this species, found wild about a dozen times, yet no two are alike. Then what would an American fern-hunter think of a form like *P. v. elegantissimum*, with three kinds of fronds, viz., quite normal, tripinnate in a charmingly slender fashion, and finally the tripinnation enhanced by nearly inch-long lingual extensions from more of the tips; and to crown the edifice, young plants, as bulbils, fringing the fronds in association with the same; yet this but meagrely describes my own specimen of this. This was found in Cornwall; but a second find is recorded in *Cœrmarthen* which from the fronds I have seen is identical, though I am not sure of its possessing the same peculiar multiformity of type. Our *Lastreas*, *Athyrium*, *Polystichum*, *Blechnum*, *Asplenium*, *Scolopendrium* and *Polypodium vulgare* have given us hundreds of wild abnormalities, as stated above, and few of the native species but have vouchsafed some departures.

My own collection embraces about five hundred of the best, including, of course, a number of types which have been obtained by selected culture, a separate branch of the hobby which has yielded glorious fruits. The Shield Ferns of Jones & Fox, and my own strain of plumose *Athyria*, have no parallels as regards delicacy of cutting, redundance of frondage and beauty of general effect; yet these, the finest of them, have developed in three or four generations, only from the wild find of abnormal extra division, which formed the starting-point in each case. Jones & Fox's incomparable Shield Ferns, *P. angulare plumosum densum*, and its companions, sprang from the first sowing of a merely decomposite wild find.

I am, however, travelling perhaps too far in this direction, the primary object of my paper being the encouragement of the search for the original material among the ferns which your readers may come across. It must not for a moment be imagined that it is only necessary to go carefully through the nearest clump or habitat of ferns to find something good. The finds are rare things, numerically, even here, and great perseverance is a sure gain now. Given this, however, I believe results will follow; and once a good thing has been found, and faith thus instilled into the finder, he or she will require no further encouragement. The fern fever will have been caught, and will inevitably run its course, transforming him or her into an enthusiastic hunter for evermore.

CHAS. T. DRUERY, F. L. S., V. M. H.
London, England.

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GENERAL GARDENING

THE INTELLIGENT GARDENER.

Who drew, with careful hand and curious eye,
Truth from a flower, and wisdom from a fly,—
Who opened gates to Nature's secret store,
And Science thron'd where error reign'd before.

DESTROYING THE TUSSOCK MOTH CATERPILLAR AND BAG-WORM. — If persons would only realize the advantages and ease with which many obnoxious insects may be prevented from spreading, the troubles in summer would be greatly reduced. The Bag-worm—so-called because it lives in its "bag," or cocoon, even during its ravages of a tree—dies in the autumn; but the female first deposits a large number of eggs right in her cocoon, which is afterward her grave. These bags are easily detected in winter, hanging mostly from the upper branches of evergreen trees (the Arbor-vitæ seems a favorite), and may be picked or cut off and burned. When one knows the immense number of eggs which would thus be destroyed, the value of doing it is readily seen. The Tussock Moth acts in precisely the same manner as regards the deposit of eggs in her white cocoon, and the work of destruction would be the same. These silky, white cocoons may be found flat against the trunks of trees, under old boards, and around rubbish of all kinds. They are most easily found in early winter.

CEMETERY PLANTING.—In the line of thought recently suggested by MEEHANS' MONTHLY, the *Weekly Florists' Review* of recent date contains an answer to a correspondent on the subject of cemetery planting. In brief the writer says:—

"In the beautiful cemetery in which I do a great deal of work, the graves are rounded up in the old conventional style, and covered with sod. It would please the authorities of our Forest Lawn [Buffalo, N. Y.] very much if the graves were all level, to conform to the surface of the surrounding grass. It would save a great deal of work and the grass could be kept much fresher and greener, as the mounds dry out far more than the surroundings. I notice in the Greenwood Cemetery, in Brooklyn, that many of the graves are covered with English Ivy. I would say there is nothing better than this beautiful plant for the purpose, but it would not be hardy in Buffalo. It would suffer during the bitter snows of March while it was severely frozen. There are quite a few graves lately covered with *Vinca minor*, the common periwinkle. In situations where the graves are beneath the shade of trees, and grass is difficult to grow, the *Vinca* comes in excellent. It is perfectly hardy, forms a close material and looks green the whole year. It needs shearing every spring. Perhaps after a time, people will be satisfied to have the graves leveled, and then it will be much easier to grow the *Vinca* or the ivy on them, and I believe that the management of all cemeteries would be glad to have it so.

"In Forest Lawn no one is allowed to do any sodding or plant anything on the lot that would disturb the sod, but they have given permission of late to cover the graves with *Vinca* where desired. All the florist is allowed to do is to put iron or wooden vases on the lot, filled with flowers. Neither are there any fences. If suiting the general effect of the lawn, a tree may be on your lot, but if it is not a suitable place there is none allowed. This may seem to some a little arbitrary, but there is no doubt it is the ideal way to conduct a cemetery. I do not know of any material except the English Ivy, where hardy, and the *Vinca minor*, with us so good for the purpose of covering graves."

MORGANTON (N. C.) STATE HOSPITAL.—To the visitors and residenters of western North Carolina no place seems to attract so much attention as the "State Hospital" at Morganton. The site chosen for this magnificent work of "humanity" is a gently rolling plat, situated

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between the Blue Ridge and South Mountains, and commanding a perfect view of the surrounding country. Here it is that patients suffering with diseases of the mind are carefully watched and nursed back to the pleasure of real life, under the guidance and skill of Dr. P. L. Murphy and his able corps of assistants.

The extent of the hospital grounds proper is in the neighborhood of 700 acres, and nearly all under cultivation. The orchard work receives a good share of attention, about 150 acres being devoted to it. The lawns at this institution are unsurpassed in North Carolina. All around the building is a double terrace, with steps at convenient distances, to enable visitors and others to reach the plateau on which the hospital is built. The lawns are in extent about 50 acres, and are all seeded with the Kentucky Blue Grass (*Poa pratensis*). This is found to be admirably adapted to this section (price included). A few years ago, Dr. Murphy had constructed three greenhouses on the combination plan, by Hitchings, of New York, and since their erection they have been a never-ending source of enjoyment to the patients. Cut flowers are supplied to them every week for their amusement, while quite a number get plants and take them to their rooms, and look after them. Generally, about the first week in November, a Chrysanthemum exhibit is held in the hall of the hospital. This is looked forward to as one of the social events of this district, and is open to all in the afternoon; while at night the patients have their inning. The blooms are all cut and distributed among the patients before they leave the hall. The flower-beds take up considerable time in arranging and planting out, requiring in the neighborhood of 250,000 plants and bulbs. Time nor space will permit us to go into detail, but we cannot close without mentioning Mr. F. M. Seroggo, the efficient steward of the institution, on whom the greater part of this work devolves.

Nor yet should the head-gardener be neglected in receiving due share of credit, for, after all, what would even a good hospital be without attractive surroundings, to cheer the hearts of the afflicted ones? We may well believe that a contented heart and mind will work hand in hand with medicine in giving speedy relief from most all ills; and surely flowers, fruit, and a pretty landscape are appreciated by every one, and give one of the strongest touches of home-life that is possible. To manage successfully extensive gardening operations of a varied nature, is no small matter, and the surroundings of this institution give evidence of a good guiding hand in that respect.

A SCENE IN A BOTANIC GARDEN, BRITISH GUIANA.

A Garden Scene in British Guiana.—British Guiana is familiar to our readers by the large number of the beautiful orchids with which our conservatories are adorned. They, indeed, furnish the chief floral ornaments of

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these regions. The forests are made up of trees that have unattractive flowers, and palms that have graceful foliage, but nothing to boast of in the way of bloom. But Nature seems to have regretted her parsimony in this regard, and made up for it by having trumpet vines, with gaudy flowers, climb over them,—and epiphytal orchids, with their sweet and lovely blossoms, cling to their branches. The palms, however, always charm by their foliage, and are an essential part of garden scenery.

Accompanying this is a view taken from one of these gardens, from a photo kindly sent by our attentive correspondent, Mr. Joseph C. Roop, of E. Stroudsburg, Pa.

REMOVING LARGE LIMBS OF TREES IN MARCH.—I am always interested in your statements relating to trees, and generally fully agree with them, but your statement that "it is practicable to remove the large lower limbs from trees at any season of the year," I think, conveys an erroneous idea. Of course, it is practicable; but is it the best practice? My observation led me to believe that the removal of large limbs from apple trees in New Hampshire in the month of March caused their knots to rot and weaken the trees, instead of becoming dry and remaining sound. Such was the fact in several instances, and I supposed such would generally be the result. Am I not correct? J. C. LYMAN.

Exeter, N. H.

[The article mentioned may have caused erroneous ideas in the minds of some, though the facts are correct. March may be a hard month on the knots of the trees pruned; yet, if the advice in the whole paragraph be carefully followed, it should make no difference in the results. To quote from it:—"In any event, it is desirable to paint the wounds with thick ordinary paint, or something that will keep out the air and moisture." If this be done, renewing it "until the new growth of wood covers the wound," there can be no decay nor weakness while the coating remains to keep off the air and moisture.

"Is it the best practice?" That depends entirely upon circumstances. In horticultural practices it is best to do whatever is needed at once, if possible, or during a period when there is but little other work to be done. Therefore, if the removal of the limbs in March is particularly desired for some cause, or it fits in better with other work, that is the best time to do it, provided always that the coating of the wounds be made and kept perfect.

Possibly something, as the oozing of sap, will prevent the protection of the wounds; but this is likely to occur in much earlier months than March. The pruner must then keep watch of his tree, and paint the wounds as the conditions permit.]

FALL AND WINTER BEAUTY OF VIBURNUM OPULUS.—No brighter effect in massing shrubs or in mixed groups can be formed than by the use of the High-bush Cranberry, so-called from its cranberry-like fruit, a large-growing native shrub, botanically called *Viburnum opulus*. While its foliage and flowers are to an extent ornamental, the numerous bunches of fruit of a clear, bright red color in the fall and winter, make a gorgeous display, rivalling all other ornamental berry-bearing plants. It is perfectly hardy, even where winters are most severe.

CORK.—Many of us are surprised when brought face to face with the fact that what we have easily to hand we know the least about.

BRANCHES FROM THE CORK TREE.

Cork is a familiar illustration. Few know that it is part of the bark of a tree,—and still fewer that it is formed by a species of oak, the *Quercus Suber* of Linnæus,—*Suber* being the

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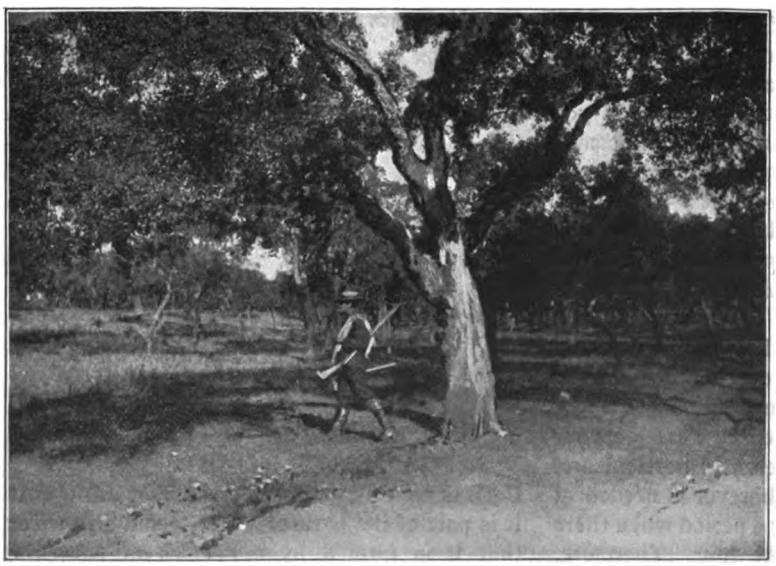
classical Latin for cork. A very interesting little pamphlet before us, entitled "From Forest to Pharmacy," issued by the Armstrong Cork Company, of Pittsburg, Pa., apparently for gratuitous distribution to its patrons, tells the whole story from the tree, as it sprouts from the acorn, until the cork finds itself in the druggist's bottle. The accompanying illustrations have been taken from this source. One shows a branch with the acorns among the holly-like leaves; the other the mature tree, and how it looks when denuded of its valuable coating. It is only the outer layer that is decorticated, the inner bark continuing the vital processes necessary to the further growth of the tree.

BERBERIS THUNBERGI.—One of the most useful ornamental shrubs in cultivation is the Japanese Barberry, *Berberis Thunbergi*. For the purpose of a dwarf hedge, it is the best known plant in use. It makes a pretty specimen singly on a lawn appropriately located, or in masses bordering shrubbery plantings. The foliage is small, neat, and colors richly in autumn, when the plant is further ornamented by scarlet berries. Further, it is very hardy, and stands almost any position. It is undoubtedly an all-round plant.

HARDY VINES.—Two of the most hardy vines are *Celastrus scandens*, commonly called Bittersweet or Staff-vine, and the Chinese Matrimony Vine, *Lycium Chinense*. Both bear scarlet fruit, which is very ornamental in fall. They are unusually handsome and distinct from other vines in foliage, and could be used oftener to advantage than is done. The *Lycium* makes a twiggier growth, and is not more than of a half-climbing nature; while the *Celastrus*, by pruning, can be similarly grown. The latter has a habit of twining its own stems around each other, making at times a stout stem or rope, which doubtless accounts for the name of Staff-vine. A prominent feature of each is the deep green color of the foliage.

BEHAVIOR OF LAWN GRASS IN SUNNY AND SHADY PLACES.—What seems a contradiction of customary results in connection with the behavior of lawn grass, came recently before the conductors. It is a general cry that grass will not thrive beneath large trees in its shade, and most efforts to improve lawns are in that direction. But in the present case, the grass is thriving beneath the trees, and outside in the sun the sod is poor and largely occupied by fall grass.

To solve the mystery and account for this apparent contradiction, we must understand why grass does not usually grow well beneath large trees. This is explained in the fact that the roots of a tree naturally use up the fertility of the soil—the moisture and mineral foods—and the longer the tree has been established, the less substance remains in the soil, and this will be used up with greater proportionate rapidity than before. Mere shade has but little deteriorating effect on the grass, provided there is food and air.



A CORK TREE PARTLY STRIPPED.

In the case before us, the lawn had been renovated, replenished with food and seed fresh sown. There was no reason why it should not do well beneath the trees while the good conditions lasted; and

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the shade was a benefit to the new grass with such little root. Apart from the trees, exposed to the sun, the grass did well till towards midsummer, when the heat and drought proved too much for the tender grass plants, and many succumbed to be supplanted by the fall grass. It was proposed to plant rapid-growing trees, like poplars, that the grass might receive shade; but this would be but a temporary measure so long as the roots were allowed to feed as they choose without the soil being well replenished. The same end would be gained by sowing oats with the grass. Being strong-growing, they would shade the grass till it obtained a good roothold, and by keeping it cut occasionally with a scythe, it would not grow too large, and prove detrimental.

If the sod beneath trees could only be kept loose or light, and abundantly supplied with fertilizer and some little moisture, if it showed need for it, the problem of grass-growing beneath trees would be generally solved.

IRREGULAR GROWTH OF SEEDS.—It is a common experience to have seeds come up irregularly. Some come up in a few days after sowing,—others not for weeks; and, in nursery culture, many will not come up till the following year. Many unsatisfactory reasons have been given for this. Mr. W. C. Steele, of Switzerland, Florida, has been making tests by soaking seeds in water. Bony seeds have been three months in water, and some will swell and germinate at various periods before this time has been reached. As the seeds were from the same tree, gathered at the same time, it must be evident that the peculiarity is in the seeds themselves, and has little reference to the treatment by the cultivator.

ENGLISH IVY FOR SHADY PLACES.—The need for a vine that will thrive in shady places is often felt, and perhaps no other meets the want better than the English Ivy, *Hedera Helix*. In fact, as between full sunlight and moderate shade, it will prove more satisfactory in the latter position; during the winter the sun is injurious to the evergreen foliage. Under greenhouse benches in rather dark places, through open cellar windows into a house and beneath trees, this ivy has been seen luxuriantly growing. For covering bare spaces beneath trees it is most excellent.

NEW OR RARE PLANTS.

NEW LORRAINE BEGONIAS.—The Begonia, "Light Pink Lorraine," is supposed to be a sport from the original "Gloire de Lorraine." There is some doubt as to its true origin. It came among a lot of the original Lorraines which I received from a gentleman in exchange for other plants. When written to for information as to what it was, he could not tell. It is not only distinct in the color of the flower—being a very delicate shade of pink—but the flower is also larger, and the habit of the plant is more compact in its manner of growth; yet it is more robust, and from testimonial evidence received it stands the change or adverse conditions, which plant-life is frequently subjected to, better than does the original variety.

Wyndmoor, Pa. EDWIN LONSDALE.

[A beautiful exhibit of this new Begonia was made by Mr. Lonsdale at a recent meeting of the Chestnut Hill Horticultural Society, where it was seen side by side with the ordinary Gloire de Lorraine. The compact, robust growth, mentioned by Mr. Lonsdale, was quite noticeable; the peduncles were stouter, holding the flowers more erect, making a finer display. The value of its robust character is testified by its more lasting qualities.

The Lorraine Begonias, whether the original or its sports, may be considered among the most treasured plants for decorative purposes. Too much cannot be said in their praise. A well-grown plant is simply a dense crown of blossom to the pretty, green foliage beneath. Growers say that the most successful method of growing them is to confine them to small pots. Plants from cuttings can be brought to a beautiful blooming stage within a very few months, and these will continue to bloom for six months. A pretty combination is made by planting Maiden-hair Fern around the Begonia in a six-inch pan.

Another new Lorraine is a white sport named Caledonia. Some fear its whiteness may not prove permanent. In any event, it will never be as popular as the pink varieties, yet very valuable to combine with them.

FLOWERING OF THE BONAPARTEA.—"*Bonapartea juncea* alluded to is in flower now and open in the lower portion of spike. I may add that the plant that was in bloom when I was

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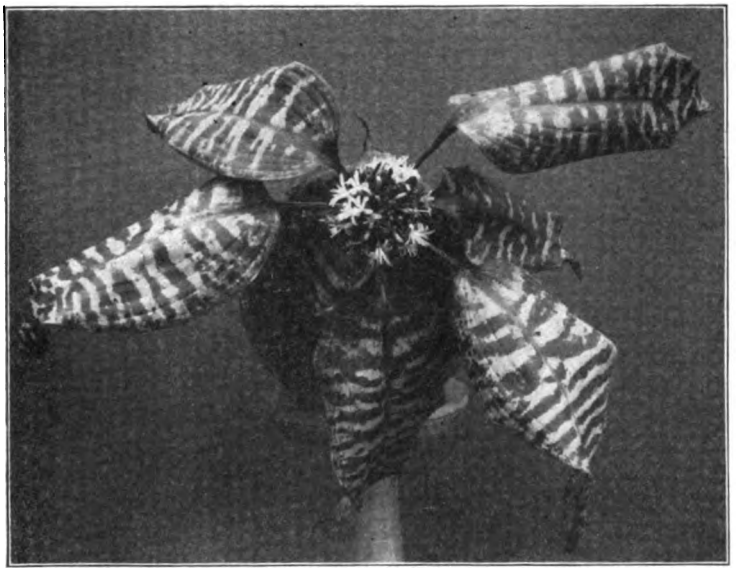

DRACÆNA GOLDIEANA.

at Kew was of the same variety. The seed was saved and sown, and a year or two later I visited the gardens and made inquiries regarding the outcome, and, strange to say, some of the young plants were like the parent, with plain, smooth and rounded leaves, while others were lightly covered with filaments. One or two were completely covered with them, which goes to show that either variety can be obtained from the seed. The old plant exhausted itself and died. At the same time (1868) there were also in bloom two large plants of *Fourcroya gigantea*, which sent up spikes fully fifty feet high and were branched at base. The flowers were, as near as I can remember, cream white, and resembled, somewhat, our common hardy Yucca, only that the flowers were larger and much handsomer. I think all belong to the *Amarylldaceæ* or *Narcissus* family."

HENRY B. SURMAN,
Gardener to E. W. Clark, Esq., Germantown, Phila

[The *Bonapartea* is regarded as barely different from *Agave*, or, as *Agave Americana* is termed, the Century Plant; and, like it, is supposed to flower only with the centuries. In their native countries they are not as long in coming to a flowering condition. Possibly the previous remarkably hot and dry summer advanced their flowering. A plant of *Agave filifera*, that has been in the collection of Mrs. Thomas Meehan nearly fifty years, also flowered. It is usual for these plants to die after flowering,—but young suckers come from the roots, and perpetuate it in that way.

DRACÆNA GOLDIEANA.—Many of our readers are now familiar with this beautiful variegated-leaf plant which, during the past twenty years, has become one of the most popular of that class for room and conservatory decoration. The usual illustrations of a plant in an erect position, do not fully represent the beauty of leaves when a full-face view is obtained,—and it is rarely seen in flower. Our good friend, Mr. John Coulson, gardener to the Hon. Stephen Salisbury, of Worcester, Mass., has caught the happy thought of placing the plant in a horizontal position for a photograph, which enables us to fully appreciate its special beauties.

THE HARDY FLOWER GARDEN.

HERBACEOUS PERENNIALS AS A POWER IN LOVE FOR HORTICULTURE.—To those already interested in some line of horticulture, it is difficult to realize the comparative indifference of some persons, beyond a passing interest in some beautiful flower or plant before them. The class which the former represent carries with it an innate love for everything which nature reveals in so many charming and interesting ways; and it is supreme happiness for such to be so situated they may enjoy the constant privilege of close communion with nature in her many forms.

The writer's experience confirms him in the belief that nothing is more conducive to the creation of love for plants than to familiarize one's self with what are termed hardy herbaceous perennials. By their character, they are made available for cultivation in comparatively small areas; and as the number of species and varieties is great, plants adapted to any situation may be readily selected.

By this it may be seen that such a study would not be confined to those having only

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large grounds at command. A bed or border seventy-five or one hundred feet long, artistically skirting a side or rear lawn would add wonderfully to the attractiveness of the place and could contain a considerable variety of plants calculated to bloom all season long, from early spring to late fall. That is to say, each individual kind of plant blooming at a different period from the others would in the whole flowering season cover that length of time.

With a bed as described, it is always ready for investigation as time will permit. A stroll along its margins during a few leisure moments reveals some flower that was not open a few days before; or perhaps a bunch of flowers may be cut and placed in water for the odornment of the house to be constantly observed and enjoyed.

In mid-winter on a warm day may be seen the Winter Aconite or Christmas Rose blooming unconcernedly; and in earliest spring, peeping sometimes almost from beneath the snow, the snowdrop heralds the coming season.

Thus commences an almost never ending interest till, late in the fall, braving light frosts, we have the tall, showy Tartarian Aster and the Hardy Chrysanthemums. They are the rear guard assuring us by their presence that the flowers we have previously enjoyed are safely behind them resting for their precessional of glorious blossoming the following year.

Not the least important fact in support of the praise given these plants is that they largely care for themselves. Perennial plants grow and give pleasure for the summer, die to the ground and come again each succeeding season. But a bed once planted does not usually remain unchanged. One of the chief pleasures is in adding to the collection something new, placing them here or there as space will permit. Nearly always may a spot more or less bare be found for such a purpose.

Many of the plants in this class have an added interest by being among the old-fashioned garden flowers seen about old cottages and country villages. They include many of the "yarbs" the "old inhabitants" talk about and delight to suggest for the cure of all ills.

The conductors of MEEHANS' MONTHLY would like to see more interest evinced among the readers in connection with hardy herbaceous plants, as they have always held a warm place in their hearts for these plants; and special articles bearing on the subject, or assistance in selecting plants, will be gladly furnished. The experience of different ones with their plants might be told with interest to other readers.

FRUITS AND VEGETABLES.

A NEW PEAR FROM WASHINGTON.—A rival of the Bartlett Pear is promised from Washington State in the near future. In many respects, it is said to be not unlike the Bartlett, but is superior in quality. It is a seedling evidently produced from mixed seed of uncertain origin. No claims are made for its possibilities as a pear for shipping—only for home and near-market use.

SOME PRINCIPLES IN PEACH CULTURE.—Advice from men successful in a particular calling is extremely valuable, and while not always applicable for those who receive it, the uuderlying principles can usually be found useful and will awaken new thoughts which may lead to better results.

Mr. Roland Morrill, Benton Harbor, Mich., made a remarkable success in peach-growing, notwithstanding many early difficulties which would prove almost insurmountable with many men, and his advice may be considered sound.

He is above all particular to carry out to the letter any treatment which his reasoning tells him is correct, therefore he cultivates almost daily during two months of the years when it is most needed. Undoubtedly, cultivation is one of the most serious requirements to him.

A case of "yellows" never remains a day after its discovery; fire is his remedy, applied to root and branch, and care in handling to prevent possibility of spreading. With this prompt destruction of an affected tree, the disease is comparatively rare among his trees, and new trees are immediately established where the old ones are removed.

Mr. Morrill is a firm believer in wood ashes as a fertilizer, and he uses but little else.

It is necessary that every man should investigate the advantages of certain methods of cultivation for himself, because of varying conditions. At a recent meeting of the Mary-

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land State Horticultural Society, after valuable and apparently exhaustive addresses by Mr. Morrill and Mr. J. H. Hale, on peach culture. Prof. L. H. Bailey, of Ithaca, showed the necessity for caution—particularly in the matter of cultivation. On heavy soil, it is impossible to cultivate but infrequently, when the soil is perfectly dry. As a rule, however, light soil is selected for peaches.

IMPROVED STRAWBERRY CULTURE. — The amateur gardener can often adopt modes of culture, favorable to excellence, that would be hardly profitable for the market gardener. In strawberry culture, for instance, it is said that much finer and more toothsome berries can be obtained by setting the plants out on ridges than when grown on the level ground. The earth is thrown up into a wedge-like form a foot or so in depth, and then flattened on the apex by the back of a spade so as to be only about nine inches deep. The plants are set out about a foot apart along this narrow table on the top of this ridge. The result is said to be a surprise to those who are familiar only with the ordinary flat culture.

ROTATION IN GARDEN CROPS.—Watever may be true in farming, the practical gardener usually understands that the general rule adopted by the farmer, as to the rotation of crops, does not prove to be of equal necessity in gardening. But there can be no rule for this. The good gardener alone must decide for himself in each case. For some kind of crops, and under some conditions, a change of crop from year to year, may be desirable; but with good judgment in each case, such a course may not be necessary. The potato, especially, under proper treatment, has been grown successfully on the same ground for half a score of years. Some special manure is desirable; but brains constitute the best fertilizer.

PEACH-GROWING NEAR PHILADELPHIA.—The peach is a tree that demands more or less attention to secure first-class results, and, in the writer's opinion, it was lack of this which caused an impression to exist for a number of years, among residents near Philadelphia, that peaches could not be grown in that locality. This refers, of course, simply to smaller resident places and farms. In reality, there is perhaps no betttr section for successful peach-raising, as has been evidenced in a small way by numerous scattered trees and by a fair-sized orchard or two.

Within twenty miles of Philadelphia proper (and that does not remove the location very far from the city's outskirts) is a very successful orchard—successful from financial standpoint as well as from that considering quality of fruit. Here, the buds are not advanced prematurely in the late winter and then frozen by further cold weather, as they are in certain sections of Delaware, Maryland, and other States almost year after year in quite recent times; but the crops are as regular as the habit of a peach tree will permit.

Pennsylvania as a whole has frequently received authoritative commendation for its fruit-growing possibilities. While other States may grow larger fruit, the quality here produced ranks high. The soil, as a rule, is good and calculated to support the trees for long lives. This is especially necessary for the peach, naturally a short-lived tree. In poor soil, it grows weakly and is consequently less able to withstand the attacks of diseases.

Let no Pennsylvanian despair of raising good fruit and particularly of the peach, provided he will give his trees the ordinary care they deserve. Unfortunately some fruits, the apple, for instance, will struggle along and give considerable fruit (of doubtful quality) for years, with very little attention, and by this people are encouraged to let their peaches go along in the same manner.

FOOD-VEGETABLES OF THE NEW ZEALANDERS.—The Rev. Theodore Wood, a missionary among the natives of New Zealand, gives the following account of some plants used as food by these people. He says:—"The pith of the young "Nikau" palm, the only representative of the true palms in the antipodes, as making a most palatable and nutritious diet, and eaten with a little salt is equal to white celery or the Spanish nut. The sap of the mature "Matai," or black pine (*Podocarpus spicata*), is much prized by the natives and settlers as a cooling, sparkling beverage, when engaged in felling timber, shooting birds, or hunting the wild pig in the bush. Another curious article of food is the now well-known fungus (*Sphæria Robertsii*) growing out of the

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head of a large caterpillar, found under the "Rata" tree (*Metrosideros robusta*), of which the Maoris are said to be very fond. Many other species of fungi are no doubt edible if carefully selected. The roots of the common bracken "Raorao" (*Pteris esculenta*), once the principal food of the Maoris, and the cabbage tree "Ji" or *Dracena Australis*, nearly allied to the palms, are still used as food. These are prepared in rude improvised ovens, consisting of stones previously heated, on which the roots are placed, well covered, and left for many hours until sufficiently cooked. The roots of the cabbage tree are specially cultivated for this purpose by planting them on large stone slabs to arrest the downward growth of the root and to encourage the lump or cake-like form of the same. The sow thistle (*Sonchus oleraceus*) is also used and much relished as a substitute for cabbage both by the natives and settlers, as well as the roots of a flag rush called "Raupo" (*Typha latifolia*), common everywhere in swamps and river banks, which make an excellent pickle."

ASPARAGUS CULTURE. — Since the proper treatment, in regard to cutting of asparagus, was noted in MEEHANS' MONTHLY, the subject has been taken up in many quarters, and many good ideas have been brought out from our best practical gardeners. The consensus of opinion seems to be that, from the first starting of the plant in spring, the weaker shoots should not be cut, but left to produce the leafage so necessary for the production of strong roots. One gardener makes the novel suggestion that the very best success in getting first-class asparagus is to select the plants all of one sex. His plan has been to set one-year-old plants in a bed rather closely together and mark the berry-bearing or female plants for the permanent bed. These, he says, have always borne strong shoots far superior to the beds of the usually mixed sexes. But he regrets, now, that he did not select the barren or male plants, as he believes these, being relieved from the expenditure of food in seed-bearing, would have more nutrition to spare for roots and shoots. But this speculation would hardly stand. It has been demonstrated, by Thomas Meehan, in his various papers on the laws of sex, that the male plants of asparagus and male plants and male flowers generally, are male because of a lower grade of vital power than those that produce female flowers. Under this law, a bed of male plants of asparagus would be inferior to a bed of female ones in the vigorous growth of their stems and branches.

VEGETABLE RAISING BY CORPORATIONS.—In the early volumes of this magazine, we noticed that, in some parts of the Old World, companies were formed for the special purpose of raising a particular kind of vegetable. In our own country, there has not been much attention given to this, although in Michigan, some individual growers cultivate celery on a magnificent scale. There are several tracts of land which are especially devoted to some certain kind of vegetable to a great extent,—and this is particularly true of the celery. Recent attention has been given to this method of doing a business in vegetable growing in California. In San Louis, Obispo Co., it is said, ground occupied by the celery companies comprise nearly one thousand acres. Titles of these companies seem strange to those not accustomed to seeing them,—for instance, we have the West Minister Company, the California Celery Company, etc.

Strange to say, most of the celery raised there goes to the East. Kansas City is said to be the central point for distribution. The cost of growing it, in California, averages about $25.00 an acre; and to dig and ship to Kansas City, about $35.00 an acre more.

FIGS IN INDIANA.—Mr. Henry Stede, Richmond, Indiana, says that two varieties of fig are grown there, a small black one (Italian) and a large white one (Smyrna). They have stood, for a duration of one week, a temperature of 15° to 20° below zero, producing fair crops the following season. The trees are bent down in the fall as previously described in MEEHANS' MONTHLY, but are simply protected by a heavy mulch of leaves covered with brush instead of earth.

CALIFORNIA PEARS IN ENGLAND.—California Pears now reach England in such fine order as to rival the best French fruit. The kinds relied on, in California, for the English trade, are the Hardy, Clairgeau, and Duchess.

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BIOGRAPHY AND LITERATURE.

THE GOOD NAME.

We ask no flowers to deck thy tomb;
Thy name, in purer light, shall bloom,
When every flower of earth is dead,
And all that bloom below are fled.

PERCIVAL.

THE STORY OF PHILADELPHIA.—By Lilian Ione Rhoades, published by the American Book Company. The story of Philadelphia, is really the story of the whole country, for it was there the Union had its birth-place; and what is interesting in its story interests all. This book has aimed to glean from history all those essential points that every American would like to know, and presented in a form that will interest young people especially. As of especial interest to our readers, it may be noted that a question often asked is the age of the great American Elm trees in Independence Square. They were planted, it appears, by Samuel Vaughan, in April, 1785, so that they are not near the great age often supposed. The history of Bartram and his garden is very instructive.

H. W. S. CLEVELAND.—Among the eminent landscape gardeners who have done much to advance the beautification of public parks and gardens, Mr. H. William Staler Cleveland owes a prominent place. He was besides the author of standard works on his much-loved profession. He was born at Lancaster, Mass., in 1814, and died at Hinsdale, Illinois, on the 5th of December.

THE "1900" SUPPLEMENT TO THE DICTIONARY OF GARDENING.—Published by L. Upcott Gill, London, England, and Geo. T. King, Hyde Park, Mass. The Dictionary of Gardening, familiarly known by many as "Nicholson's," after the collator and famous curator of the Royal Garden at Kew, England, is a work of seven volumes issued in———. For many years it was—and still is—a very valuable work, particularly to amateurs and horticulturists who found frequent need to investigate concerning some plant, foreign or domestic, hardy or tender. It contained just the kind of information one needed to identify plants without having to give a close botanical analysis of nearly the entire genus. Numerous illustrations appeared on every page, and these were very helpful. No attempt was made to describe every plant in existence, but rather all those with which one would likely come in contact.

But within recent years, the Dictionary of Gardening began to fail in its entire usefulness, as there were many newer plants not included. The supplement of four volumes brings the work right up to date and makes it again a very valuable work. Both the old and new are so arranged it is an easy matter to get information on any subject of culture; though for American use, everything suggested cannot be adopted. As a whole, it is a very commendable work.

THE WOODMAN SPARED THE TREE.—A Hartford (Conn.) correspondent, not writing for publication, says:—"I must tell you a singular deed showing the love of trees of our late Bishop Williams, of the Episcopal Church, as told in the *Hartford Times*, who once put down his foot on the tree slayers who cut the fine elms down on the street where the Berkeley Divinity School in Middletown is located. When the workman approached those trees on the grounds of the school, the good Bishop said 'halt!' 'If you cut down these trees, I move the school out of this city.' It had effect. The grand elms were left undisturbed. Though he be dead now, at the age of 82, may his example be kept green whenever necessary shade trees are in danger of annihilation."

DERIVATIONS OF THE NAME SEDUM.—Britton and Brown, in their truly great work, "The illustrated Flora of the Northern United States, Canada and the British Possessions," give the pronunciation of the Stone-crop—

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Sedum – as Se-dum, and say that the name was derived from "Latin, to sit, from the lowly habit of these plants." The logical mind will wonder how these plants are more "lowly," or "sit on the ground" better, than hundreds of other species. It is singular that these learned authors should adopt such a dull explanation. In Vol. I, first series of "Meehan's Native Flowers and Ferns of the United States," page 85, issued in 1878, it is shown that our House Leek was the original Sedum of the ancients; and that the plant being commonly used as a poultice for assuaging the pains of burns, scalds, etc., derived its name from these assuaging properties,—and that the pronunciation should be Sed-um, and not Se-dum. But it is hard work to uproot error.

CULTURE OF THE GRAPE.—It is estimated that there are nineteen million acres of land in the world under vineyards—of this total, France claims nearly one-third; she had more before the phylloxera appeared, but replanting is rapidly making good the loss, as the cultivation of the grape, whether for table consumption or wine-making, is very remunerative, as evidenced by the well-being and contentment of the growers. Besides, the culture of grapes affords constant and agreeable employment nearly throughout the year. The culture of the vine, M. A. de Candolle asserts, can be traced to the Bronze Age, as seeds have been found in the lake dwellings of Castione, in Italy, and leaves of the vine have been discovered in the soft stone subsoil at Montpelier, which coincides with the pre-historic period of our globe. What about the origin of the juice —of wine itself? Pictet attributes it to the Semites and Aryans, and as these peoples migrated, they made known the process in the countries where they settled down, notably in Egypt, India and Europe. Thus the vine and wine possess very ancient title-deeds.—*Gardeners' Chronicle.*

LIVE-FOR-EVERS.—A correspondent sends the following from, he says, "a high class religious serial," that uses it as an illustration of the resurrection,—and desires the name of the bulb, if known.

Among the pyramids of Egypt, Professor Lindsay, the great English traveler, once found a mummy that had lain there for two thousand years. In one hand tightly clenched was what appeared to be the bulb of a flower.

The scientist took it, planted and watered it, and watched it with intense interest. Soon a tiny green shoot appeared. Under watchful care it grew and grew and finally one day a strange and beautiful blossom opened its petals to the light of day."

It is now well understood that sleight-of-hand tricks are not confined to our people. The Arabs are adepts in the art. In helping to unfold the article, they know what the observer would like to see. "Professor Lindsay" could just as well have found a coin of Queen Victoria in the mummy's hand clenched as a bulb if there had been an equitable consideration.

APPLE SAYINGS.—"Apple sayings," says a correspondent of the *Canadian Horticulturist*, are frequent, both in our country and in England, all of which testify in favor of the fruit.

> "An apple a day
> Sends the doctor away.
>
> Apple in the morning,
> Doctor's warning.
>
> Roast apple at night,
> Starved the doctor outright.
>
> Eat an apple going to bed,
> Knock the doctor on the head.'

A little less aggressive is one of the Midlands:

> 'Three each day, seven days a week,
> Ruddy apple, ruddy cheek.'

More interesting than these is an old orchard verse, which used to be recited on certain ancient farms on the plucking of the first ripe apples of the crop. Misfortune was supposed to follow its omission, and its utterance was quite a little ceremony, the first apple, over which it was spoken, being presented to a young girl, who halved and bit it before any further fruit was gathered, or at least tasted. Thus it ran:

> 'The fruit of Eve receive and cleave,
> And taste the flesh therein;
> A wholesome food, for man 'tis good
> That once for man was sin.
> And since 'tis sweet, why pluck and eat,
> The Lord will have it so;
> For that which Eve did grieve, believe
> Hath wrought its all of woe—
> Eat the apple!' "

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GENERAL NOTES.

A WHISTLING TREE.—Theatrical managers are certain of this fact. They will not use the Whistling Tree, that is the *Tsofar*, for carpentering. In the *Pharmaceutical Journal* we are told that a gum is obtained from it, known under the name of *gédaref* or *Sennaar Gum*. It is a very interesting tree. According to Dr. Schweinfurth, as the wind blows across its branches, it produces a sound analogous to a flute. This musical property, wonderful in a tree, especially a gummy one, is due to the fact that the base of the prickles of the hirsute branches is perforated by a certain insect, which sucks the gum out and transforms all the thorns into little flutes. Happily we only see things of this kind in the south of Nubia. —Translated from *La Semaine Horticole*, by SARAH D. LANNING.

UTILITY IN GARDENING.—A point is sometimes attempted to be made that while farming is useful, gardening is a mere sentiment, and the lines between beauty and utility are somewhat tightly drawn. But even those who use this argument do not show by their lives that they have full faith in it. One man may look on a magnificent specimen of forest-tree growth with admiration of the beauty in every leaf and branch, while the next man be calculating the dollars he may make out of the lumber in the trunk. But after the bank account is swollen with the cash, pure utility will not permit him to clothe himself in a coffee sack nor his wife and family in garments of fig leaves, because he has no use for beauty. He does not travel on a dead level, dreary plain because there is greater expense and labor in getting to a mountain top, but admires the grand mountain scenery as deeply as the mere lover of nature. Indeed, a lover of any kind is more inspired by beauty than by ugliness, and a bank note would be less acceptable to any one if passed as a dirty piece of square paper, than with a neat picture of De Soto or some handsome face. To our mind, the objection sometimes made to gardening, that it has no utility in the economy of human life, should be classed with that department of literature known as "fudge."

COMMERCIAL VALUE OF APRICOT STONES.—The value of apricot pits is being commercially demonstrated this season. Time was, and not long ago, when the humble pit was a waste product, a valueless something that was spurned as being ever in the way. Later, it was dignified with a value; it commanded $5 a ton to be used as fuel under the boilers where steam power was generated. It burned well and made a desirable fuel. Now, the uses to which the erstwhile despised pit are put are many. The demand is running ahead of the supply and its value is continually increasing. It is made to yield up its content, of marketable poison—prussic acid; it gives a very desirable quality of "almond oil;" it enters largely into the manufacture of candy—in places, Germany for instance; it is even said to be useful in the fabrication of baking powder. These are some of the pits' possibilities. There are others.—*California Fruit Grower*.

INCOMBUSTIBLE WOOD.—In most cities, the losses from fire are so heavy that restraining laws against wooden buildings are continually being enacted. Perhaps the time may come when incombustible wood may occupy a place in building operations. There are many plants among the myrtaceous and cactaceous orders that have wood that will not burn. The wood is, however, too hard to work up conveniently; but surely it could be used by mortice and pins in situations the most dangerous.

CALCEOLARIA—"FISHERMAN'S-BASKET."—A very appropriate popular name for the *Calceolaria* is mentioned by a writer in *Lippincott's*, namely, "Fisherman's-basket." The peculiarly-formed flower resembles such a basket as closely as nature could make it. For oddity as well as beauty, it should be seen in conservatories more frequently.

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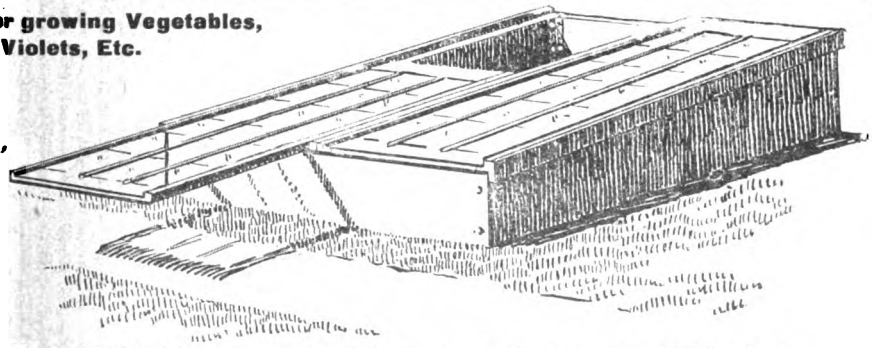

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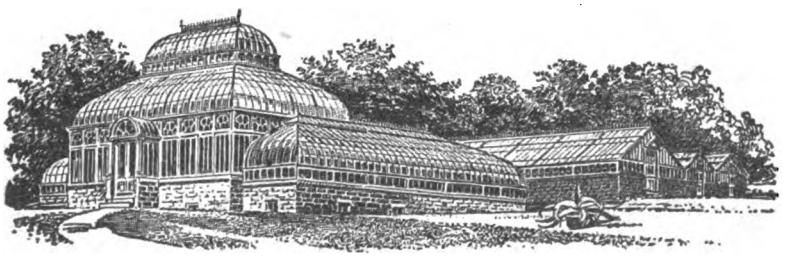

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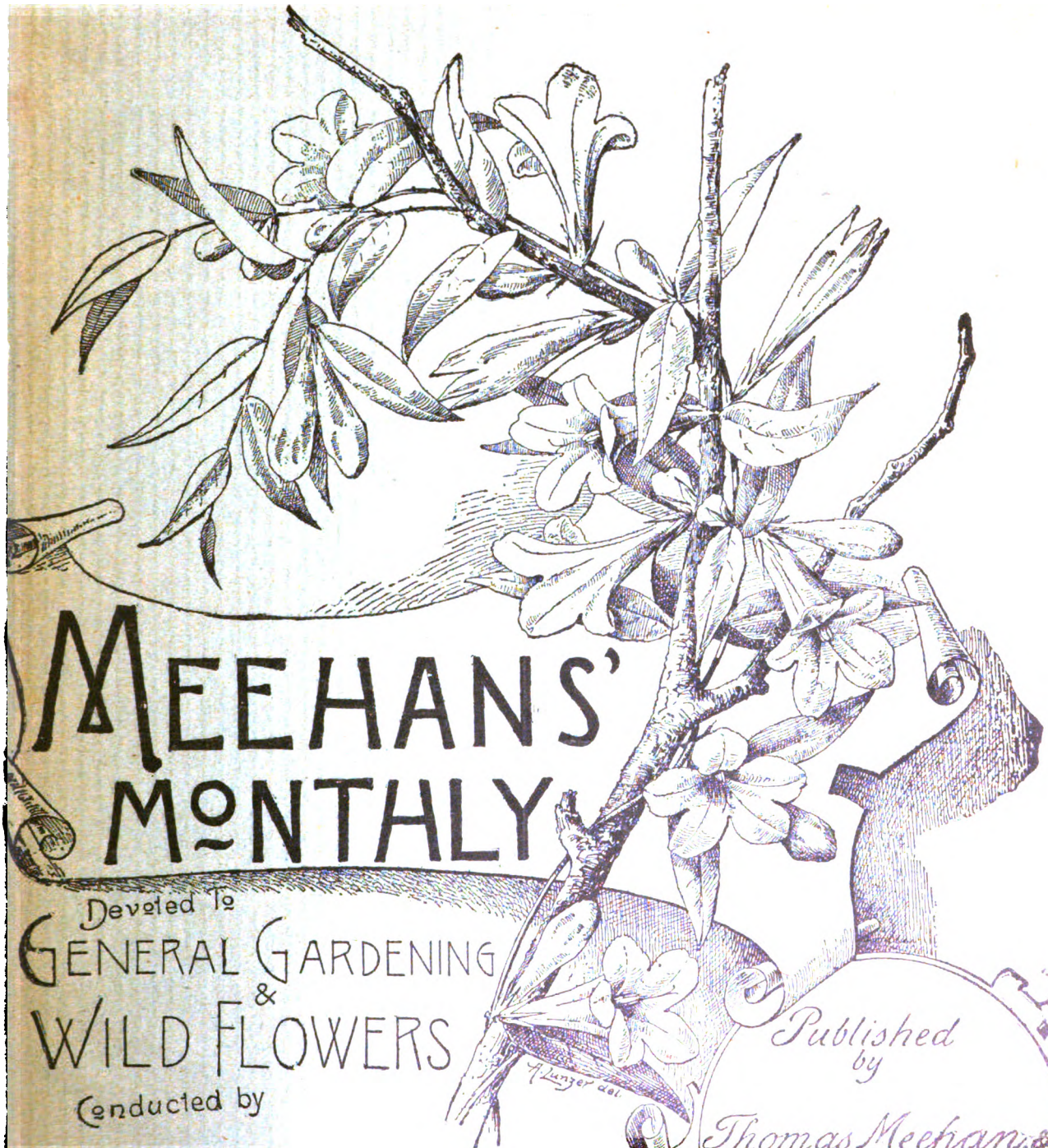

MEEHAN'S MONTHLY

Devoted To
GENERAL GARDENING
&
WILD FLOWERS

Conducted by

THOMAS MEEHAN

Published by
Thomas Meehan & Sons
Germantown
Philadelphia.

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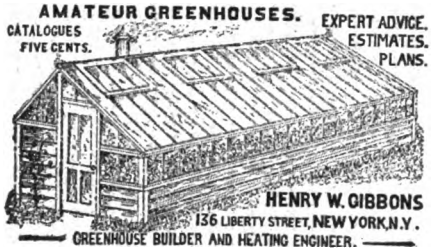

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VITIS INCISA

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VITIS INCISA.

WAX-LEAVED GRAPE.

NATURAL ORDER, VITACEÆ.

VITIS INCISA, Nuttall.—Leaves trifoliate, thick and somewhat fleshy; leaflets incisely toothed or lobed, cuneate at the base; flowers tetrandrous and tetrapetalous; berry globose-obovate, one-celled, one seeded. Torrey and Gray's *Flora of North America*. See also Chapman's *Flora of the Southern United States*; Young's *Flora of Texas*.

One of the pleasures the lover of wild flowers enjoys is the recollections connected with the first meeting with some rare plant in its native home. The beautiful and interesting plant now presented is a good illustration of this. It was the privilege of the author of this chapter to make botanical collections in the Indian Territory over a quarter of a century ago, and his first meeting with this plant was on the banks of the Arkanas River, near Fort Gibson, where it was climbing over low bushes. Its thick, shiny, waxen leaves gave the whole mass a very unique effect. It was a pleasant trip, bringing the collector into contact for the first time with the comparatively civilized Indian tribes of Creeks, Cherokees, and Choctaws. The roots were found to be tuberous, and a small one of the size of that represented in the plate was brought home for the writer's garden, where it has remained to this day, continually bringing to mind pleasant incidents in the collecting trip. It is from that plant that the drawing was made. It was first seen, by the celebrated Thomas Nuttall, in the early part of the century, and, probably, in the same vicinity where the plant now illustrated was collected. What became of his specimen is not known. But he intended to describe it under the name here given, and the name with the specimen was adopted by Torrey and Gray in the work quoted at the head of the chapter, with due credit to "Nuttall's manuscript." To Nuttall, as well as to the writer, the trip to this region must have been a very enjoyable one. The cost of the journey was borne by Collins, Haines and a few other members of the newly-founded Academy of Natural Sciences of Philadelphia, and amounted to but a few hundred dollars,—not more than enough to carry one on a trip of a few weeks to the same region and back from New York or Philadelphia in these days,—yet, after a year of exploration, he writes back to his patrons that his money is not nearly exhausted, and asks leave to stay with it over another year. As a matter of fact, little is yet known of it outside of the territory in which Nuttall first discovered it. It was subsequently found in Texas, by Lindheimer, Leavenworth, Wright, and Hall,—and is noticed by Engelmann in Dr. Wizlizenus' report,—and Schott collected it at Santa Magdalena, Sonora, as noted in the Report of the Mexican Boundary Commission. Though the author of this chapter has had occasion to examine the collections of travellers, he has met with no specimen from either within or without these boundaries. It would seem to be somewhat of a rare plant, even within its own native locality.

Botanists differ in opinion as to whether *Vitis*, *Cissus*, and *Ampelopsis*, should be regarded as distinct genera, or only subsections, employing *Vitis* to cover the whole. In *Vitis*, the petals are somewhat united, and are discharged from service in the form of a little cap, covering, for a while, the growing berry. In *Cissus*, the petals are distinct, as shown in our picture, that should be a *Cissus*. With the difference of opinion, however, that has been already referred to, the plant has been represented under the name by which it was originally introduced, though the general appearance would suggest some distinction from the usual forms of the members of the grape vine or *Vitis* family.

Those who love to study the behavior of plants, and how nature proceeds in the process of a plant's manufacture, from the sprout-

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ing of the seed up to the final production of seed again, will find much enjoyment in a study of this plant. For instance, there is much controversy, among students of plant life, as to the nature of a tendril. The general tendency seems to be to conclude that it is a modified branch. But the difficulty here is that a branch is supposed to originate from an axillary bud. But in our plant, and, indeed, all plants of the grape-vine family, the tendril is not in the axil of a leaf, but opposite to the leaf. It could, therefore, scarcely be a modified branch in the sense that we take a branch to be. On closer thought, we see that the tendril was really the whole axis or leading shoot, and that when it was decided to become a tendril, the axillary bud, which in most species of plants would have been but a branch or branchlet, assumed the duty of leadership! In many species of plants, there are two axillary buds, one above the other, the one being called the normal, the other the supra-axillary. In our plant, there are these two, and we have both buds growing—the one as the active leader in the place of the one tendrilized, the other as a small branchlet near the base of the leaf.

Usually in species with supra-axillary buds, only one develops. One remains dormant for all time. In some species the upper bud starts to form the branch, in others the lower; but, whichever is the active one, it is uniform through the whole species. In the grape-vine family it would seem to be the upper of the two buds.

Another very interesting consideration is that, in some species of the grape-vine family, the process of reducing the leading shoot to a tendril only occurs at every other node or every third node. In our plant, the rule would seem to be from every other one. Why there should be these lapses, is not quite clear. As we see in our picture, there is no axillary bud in the tendrilless node. What was the axillary bud has become the leader, as in the case of the lower node. But what has become of the leader that, in the other case, has become the tendril? It is simply a case of atrophy. We can see, by the other cases, how very much weaker the tendril has become through being divested of leadership,—in this case, it is simply weaker still,—in fact, has been wholly absorbed. The explanation of this interesting phenomenon has to be sought for in the study of growth energy. As this is rhythmic, the degree of force varies in the progress of every wave.

Another very interesting point is connected with the motion of the tendrils. They usually coil in one direction until they find something to cling to, when the motion is turned in the opposite direction. In many cases, the tendril twists without having caught a helping hand. This may often be seen in vigorous growing grape vines. So far as the author knows, there has been no attempt to explain what seems to be a vagary in this case.

Another very interesting study in our plant is the remarkable warty character of the stem, which is shared by the thready fibres that connect the tubers together. These are commonly known as lenticels, the office of which is said to be the admission of air to the interior. To the author, they seem suber-cells—that is, agencies for the production of cork, the office of which is to aid in the rifting or loosening of the bark when it interferes with the expansion of the trunk. Why they should be so numerous and prominent in the comparatively short-lived stems of our plant, can only be answered in general terms by saying that, through all vegetation, cases of nature overdoing her work are abundant everywhere. Some would say that the plant itself has changed through the long ages, and that these are the remains of organs once of great service to the plant.

When we read of vines in a general way the impression prevails that we have before us plants of a permanent woody character growing over arbors, and bearing from the same stems crops of luscious fruit year after year continuously. We can scarcely think of them as herbaceous plants. But this is the character of the species here described. It dies down annually, preserved for another season's activity by its tuberous roots. But this herbaceous character is not confined to this American species.

EXPLANATION OF THE PLATE.—1. Growing branch. 2. Flowering branch. 3. Axillary bud has become the leader, pushing aside the former leader, which has become a tendril. The tendril may be seen changing its line of motion where it has reached its support. 4. Twig of *Viburnum* supporting the vine. 5. Node in which the tendril is atrophied. 6 Portion of main stem, showing warty cork cells. 7. Flowers magnified. 8. Full grown, but unripe berries. 9. Root tubers.

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WILD FLOWERS AND NATURE.

THE PROTECTING FOREST.

Enforst to seeke some covert nigh at hand,
A shadie grove not farr away they spide,
That promist ayde the tempest to withstand;
Whose loftie trees yclad with sommer's pride
Did spred so broad that heaven's light did hide,
Not perceable with power of any starre;
And all within were pathes and alleies wide,
With footing worne, and leading inward farre:
Fair harbour that them seems; so in they entred arre. SPENSER.

SQUIRRELS.—This place has not, of late, been much of a resort for squirrels—but within the past few years some have been imported and let loose. This spring they have, according to the testimony of the boys, been playing havoc with the maple trees, especially *Acer saccharinum*. They have barked quantities of limbs of this maple, generally selecting those of the size of a broomstick and up to a diameter of three to four inches. Most of the damage is done among the upper branches. I have been unable to examine any of these branches closely in order to determine how deeply they have gone into the bark. Our spring is very backward and leafage not advanced very much, so that whether the leafage that has opened out on the branches beyond where they are barked will wither back or not can't be determined for a while. Yet, I have not seen the squirrels do this, but it is most likely the case.

I never heard of these animals doing a damage of this nature. We shall have to pass a law that all squirrels running at large shall be muzzled. W. C. EGAN.

Highland Park, Illinois.

[The writer has a few squirrels that give him pleasure in watching their frisky gambollings from bough to bough and tree to tree on the maple trees around his residence. When their own stores of nuts have given out, he has seen them eat maple buds, but never knew them to bark a limb. This must be unusual. It would be better to throw around a few nuts in the fall for them to gather for their nutteries in hollow stumps or branches than to muzzle the poor hungry little creatures.

Few animals give more interest to a country home than squirrels — and then they are models of provident industry. There could have been but few of these around where the wise man wrote, or he would have sent the sluggard to the squirrel as well as to the ant. "Consider his ways and be wise." Some learned institutions carve owls over the doors of their buildings, as emblems of wisdom. Well might saving funds, or other provident bodies, place a model of a squirrel in public view, as the representative of the happy faculty of looking ahead. Of all creatures the squirrel takes care to prepare an umbrella in advance of the rain.

COLUMBINE—AQUILEGIA CANADENSIS.—*Aquilegia Canadensis* is a shade-lover and, as some persons put it, is fond of a foster-mother, and does not thrive in the bright, hot sun as it does if growing on the north side of a house or board fence. It grows on the creek shores of Maryland, in Ann Arundel County, and seems then to fancy the banks of oyster shells, which were piled up by the Indians very many years ago, on the edges of the creeks, which are skirted with small trees, such as cedar, seedling cherry trees of the heart varieties, dropped there by the birds, service-berry, sumacs and others. As they are choked up by other plants, they grow spindling, from six inches to two feet,—but few blossoms, two or three to a plant. Yet, when removed to common garden soil and given a chance, they become magnificent specimens three feet tall, a foot or more broad and covered with beautiful blossoms in extravagant profusion. In this State, this plant is found on the edge of the Mississippi River, amongst limestone rocks, growing in their crevices, and are of all sizes, blooming from two inches tall to two feet, their height depending entirely on the situation that they occupy. Those growing in

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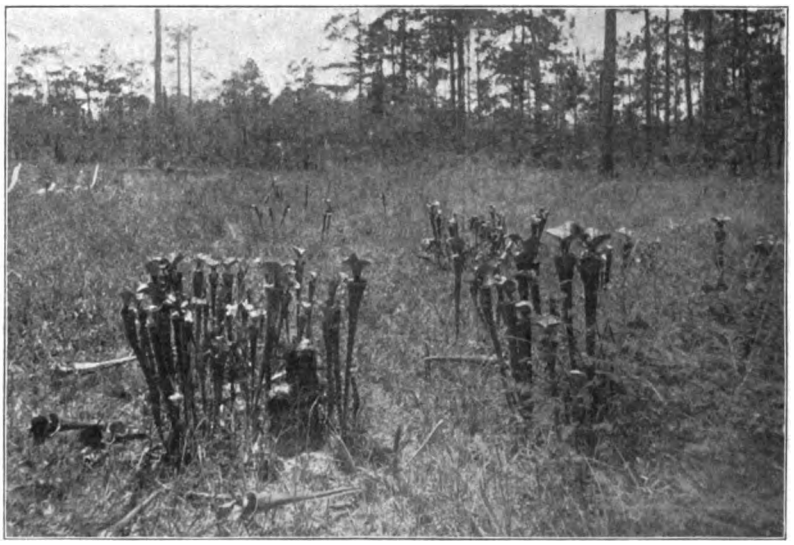
the soil between the rocks are thrifty, but are puny plants in comparison with those removed to the garden and given elbow room. Further inland, they are found in woods, amongst limestone rocks and dense shade. I have never met with them outside of woods or copses. F. K. STEELE.

Festus, Mo.

[To the above excellent practical suggestions for the wild Columbine, may be added that it applies to the whole Columbine family. They all prefer partial shade.]

SARRACENIA FLAVA IN ITS NATIVE HOME.—The annexed cut, from a photo kindly furnished by Mr. C. E. Pleas, Chiply, Florida,



SARRACENIA FLAVA.

shows the appearance of this curious pitcher plant, in its native home in Florida. The family is believed to have been evolved from some other form of plant after insects appeared on the terrestrial scene and, with a liking for animal food, proceeded to adapt itself to trap and eat them. Certainly, if we take one species by itself, the arrangements appear to be clearly the result of adaptation. But this leaves the various forms of pitcher plants still to be accounted for. How much better adapted, for instance, is this long, weak-stemmed species to insect-catching or insect-eating than the short, sturdy huntsman's cup of the Northern States?

HABITS OF THE ROBIN.—Mr. W. C. Egan says, on page 67, that his female robin pecks on the window three times when the shades are green. One of the habits of all robins on the ground, when hunting for worms in the early spring, on a green lawn, is to peck on the ground several times, when, lo and behold! an earthworm puts its head out of the ground, as if to see who is knocking at the door, when Mr. or Mrs. Robin gobbles it up. This I have known for a long time. After pecking on the ground, the robin waits a while, and if the worm is not at home, it moves onward to another worm-cast and repeats the operation. Another correspondent remarks upon the "supposed return of birds to their old locations." With the Black Martin, there is no supposios about it. This is settled for all time, in the writer's practical experience. A Black Martin male with a white feather in its wing comes back every spring to the box I have in my yard. The sexes are not exactly equal. Many of the male Martins have several wives, and it is often the case with the English Sparrow. Where there is a preponderance of females, polygamy is practiced. This is the case with the Bob White or Partridge and Quails. There are no "old bachelor" birds. They are always in demand. F. K. S.

PETALS CHANGING TO STAMENS.—A specimen of Tartarian Honeysuckle, sent by Miss Bessie Putnam, of Harmonsburg, Pa., has the lobes of the corolla in some of the flowers transformed into anthers. It was by noting transformations like these in plants generally that gave rise to the science of morphology. The fact has now been demonstrated that in an early stage of the individual the various organs of a plant have not been definitely determined. The conception is that leaves, flowers, and fruits are essentially leaf-blades.

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GENERAL GARDENING.

THE SWEET PEA.

Here are Sweet Peas, on tiptoe for a flight,
With wings of gentle blush o'er delicate white;
And taper fingers catching at all things
To bind them all about with tiny rings.

Gardeners' Chronicle.

VALUE OF FUNGICIDES.—The value of fungicides in preserving the foliage and fruit of trees is now so well understood, that, in very many gardens, their use is looked on as an essential part of the work connected with them. Not only are they of value in the fruit garden, ensuring a crop of fruit by the preservation of the foliage, but, in the case of ornamental trees, the leaves of which are liable to be disfigured or destroyed by blights, spraying is highly beneficial. Roses, planes, lilacs and horse-chestnuts come to mind as subjects generally preyed on by fungi of various kinds. One or two sprayings of a season would suffice.

What should be remembered in connection with this is, that a good spraying or two this season will lessen the necessity of doing it the next.

The foliage which falls to the ground from trees not sprayed is full of live spores, which start afresh on their work of destruction as soon as new leaves bud forth in spring. But sprayed foliage does not contain breeding beds, and thus a tree sprayed a year or two in succession, will hardly need attention for some years following,—indeed, cases are known where trees which were annually defoliated by blights and were afterwards well sprayed for two or three years became so free from attack, that no spraying whatever was needed for several years thereafter. J. M.

Germantown, Phila.

LARGE ENGLISH GARDENS.—In the Old World, a gardener is often a person of great responsibility, and requires a breadth of intelligence more varied than in, probably, many professions. Welbeck Abbey, for instance, the seat of the Duke of Portland, has a garden that is ten miles in circumference. The vegetable garden alone occupies 32 acres. There is a sunken garden, ten feet below the normal level of the ground, that occupies two acres, and requires an immense number of bedding plants to fill them. The glass houses on the place for the growth of flowers, fruits, and vegetables strike a casual observer as constituting a village rather than as adjuncts to a private gentleman's mansion. The whole 32 acres is enclosed by walls on which fruit trees are trained. One structure for stove and greenhouse plants is 300 feet long, and of considerable breadth. A house in which figs, peaches and strawberries are forced for winter and early spring forcing is 270 feet long. There are a large number of houses especially devoted to the grape vine—one wholly to the plant under pot culture. A glass front to a wall on which peaches and nectarines are trained is a quarter of a mile long. Another wall-house devoted to apricots and plums is also a quarter of a mile. There are houses for forcing tomatoes, others for cucumbers, and others especially for carnations, roses, and similar florists' flowers for cutting. In the out-door fruit garden is an arch-trellis on which fruit trees are trained 720 feet in length. For all the varied attainments required to oversee such an immense establishment, it is said that the incumbents usually manage things like clock-work. The London *Gardeners' Chronicle*, from which these facts are gathered, gives great praise to the present gardener, Mr. J. Roberts.

PAINTING TREE WOUNDS.—Months ago, I suggested that, where large limbs were removed from trees in March, the knots were very liable to rot and thereby weaken the trees. My observations which led me to this conclusion were mostly on apple trees. Recently returning home, after an absence of a few months, I find a copy of MEEHANS' MONTHLY in which it is contended that the knots of large limbs removed in March will not rot if the wounds

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are well painted. This is contrary to my idea, which is that the decay is caused by internal moisture. I concluded that the sap or moisture came into the knots for the use of the limbs, and these, having been removed, the moisture remained in the knots and caused the decay. Will not peeled green logs, well painted, decay quicker than when not painted? How rapidly birches and various other trees rot if felled in early spring! In my woods, a White Birch was felled, leaving a stump some four feet high, and the amount of sap which for weeks dropped from that stump was very great. I do not think any ordinary painting would have stopped the flow or prevented the stump from rapid decay. My idea is to remove large limbs only in cases of necessity, and when the trees are somewhat dry, and give the knots some opportunity to dry and sere before the great flow of sap in spring. After getting rid of all the internal moisture you can in the knots, carefully paint the wounds to keep out the external moisture. Is not this correct?

Exeter, N. H. J. D. LYMAN.

[Mr. Lyman is right in some respects—indeed there seems little difference between the views in both articles.

The moisture stored up in winter for the tree's use when leafing-time comes is drawn out by these growing leaves. It is these leaves that make the trunk dry. The little that escapes through a wound is very small in comparison with that which has to be drained out by the foliage. The tree would dry though the wound should be solidly sealed. The object of painting is to keep out water. It does not interfere with the natural drying out of the tree. Painting in early spring, when the wound may be a little damp, may not be as effective as if the surface of the wound were as dry as it is in summer,—but it is effective to a great extent,—and if the painting were gone over again in summer, as Mr. Lyman suggests, the two coats would certainly be all the better for the tree. The great idea to be kept in mind is to prevent water from entering the wound and aid in rotting it. Even the best painting will seldom perfectly insure this—and, as a correspondent of MEEHANS' MONTHLY has well suggested, a coating of shellac is still better than paint in accomplishing it]

THE HEATHER.—Recently appeared a sketch of the Mediterranean Heath, *Erica vagans*, which had been found to resist the unusually severe winter without the loss of a single leaf. Its companion in adaptation to American climate, the famous heather of the mother country, *Calluna vulgaris*, is now given a place in our illustrations. It seems so much at home in our country as to have taken possession of

CALLUNA VULGARIS.

some of the cranberry plantations in the Eastern States. As will be noted by comparison with the cut of the Mediterranean Heath, the branches of the British species have a tortuous tendency, and the leaves are so short that the differences may be readily seen. A colored plate and history appears in our issue of May, 1899 (Vol. IX., No. 5).

PROPAGATING THE DATE PALM.—No word having been received from Prof. MacClatchie as to how the "suckers or cuttings" of the Date Palm are produced, and as the matter has become one of general interest, we sent to the Old World to see what could be learned in the matter. It was clear that if large or otherwise improved varieties can be perpetuated as we would perpetuate a good variety of apple or pear, there must be some way of doing this, though no one ever saw a Date Palm under cultivation with any tendency to sucker. Our friend was fortunate in the acquaintance of Dr. Bonavia, who has made the Date Palm in India a special study, and we have been

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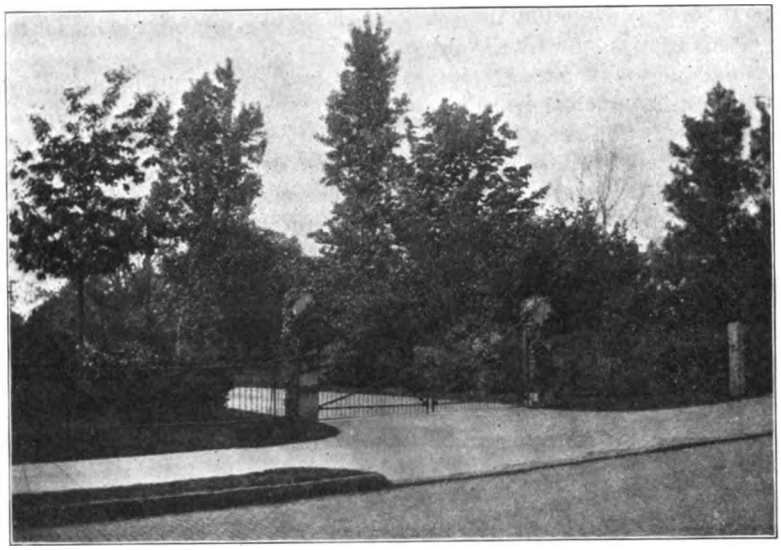
kindly permitted to make use of the private letter in which Dr. B. discusses the question. He says there are innumerable kinds of named varieties. A comparatively small proportion give first-class fruit ; the others are grown for special purposes—cattle-feeding, for instance. All date trees do not produce offsets ; but some do, and they are then propagated by these. The offsets come out from the base of the stem, and must be three or four years old before they are chopped off. If taken younger, the offsets will rot. He has seen ninety per cent. root after being chopped from the parent tree. If the States or United States are to experiment with date growing, it would be far better to import an experienced date grower, as well as the date trees. The French in Algeria root the offsets more successfully than the natives. They plant them in pots 15 or 18 inches in diameter, plunge these pots in well-manured soil, in nursery rows, and well tend them by intelligent care. The natives usually set them in the open ground and lose a large proportion. He adds, "There is no royal road for making Date Palms produce offsets ; they do it spontaneously and seemingly only when they have a mind to."

THE FORESTS OF DENMARK.—In relation to the article in the June number on the Forests of Denmark, Mr. P. J. Pedersen says : "You make me say that the natural forests of Denmark consist almost entirely of beech, juniper and yew, while I meant to say that they consist almost entirely of beech, and only mentioned the two latter plants to state the fact that they now are the only conifers to be found in a wild state. I believe I put it thus : '. . . consisting almost entirely of beech—juniper and yew (T. b.) now being the only conifers, etc.'

The juniper is, certainly, quite prevalent in some localities, but is little more than a shrub, although it will, in some instances, reach a height of about 25 feet. Of the yew, only a few hundred specimens are to be found in forests of southeastern Jutland, and it would be wrong to give either of the two plants almost equal rank with the beech."

FORMS OF TREES IN LANDSCAPE GARDENING.—Occasion has been taken, several times, to show the value of peculiar trees in the general effect of landscape gardening designs, the Lombardy Poplar being a prominent case. These trees have little beauty in themselves, but come in well as a part of a component whole. In this annexed illustration, we see again how well the Lombardy Poplar helps the general effect. Few matters are more important in garden art than the gateway and carriage road. In the illustration the entrance would be comparatively tame without the addition of the poplar trees. As it is, the effect is imposing. It is the entrance to the Nugent Home in Germantown.



DRIVEWAY ENTRANCE, NUGENT HOME, GERMANTOWN.

ARTEMISIAS.—In nearly every old-fashioned garden in the North of Europe, a plant of wormwood is regarded as essential. The leaves dried, reduced to powder, mixed with bread into a pill, is an infallible remedy as a vermifuge. It is also called "old man"—but why is not on record. Singularly, on the Pacific, *Artemisia Californica* is also called

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"old man." The Indians believe they can foretell the weather. If before the rainy season comes, the roots are not more than six inches long, there will be plenty of rain—if over a foot, there will be a dry season. It is supposed that the plant knows beforehand that there will be little rain, and so sends its roots deep, in order to prepare for the drought at the surface.

AMARANTHS.—Among the best ornamentals grown are the flowers belonging to the natural order of Amarantaceæ. Sometimes the individual flowers are not showy; but they are so brilliantly colored that, in the aggregate, they are very attractive. The Prince's Feather is an illustration. Another kind, known as the Bachelor's Button or Globe Amaranth, has its small flowers collected in round heads, and gives varieties of white, orange, and purple colors. In many cases the leaves are colored, and make as much show as would the gaudiest of flowers. But the greatest recommendation of the flowers of this family is that they seem to thrive all the better for hot and dry weather. Certainly they are among the best of plants, to submit to these extreme conditions.

THE HARDY FLOWER GARDEN.

THE HOLLYHOCK.—The Hollyhock has no thorns, and it lingers late into the autumn, in New England, when almost all other flowers have yielded to the north wind and gone with the fall of the leaf. Hence they have a charm for children and are their favorites above, perchance, even the much-admired and beloved rose. The buds, enveloped in their woolly coats, are long protected from all the early frosts, and often expand somewhat at the tip-top of the tall, tree-like hollyhock stems, and so conspicuous are these buds, they are often much admired by children of a larger growth as well, manifesting, as they do, a care and provision beyond our own.

The mucilaginous petals of the hollyhock are also often much liked by children, and they are harmless. Yet it ought to be taught, to those who partake of them, that there is a difference, as all bright petals are not equally harmless—the monkshood, especially, being so poisonous they should be guarded.

San Diego, California. E. E. ORCUTT.

IRIS MISSOURIENSIS.—I am interested in Irises and, desiring to make a collection, have been taking notice of everything I see regarding them. So far I have not noticed anything about our pretty native Iris, *I. Missouriensis*, nor is it mentioned in the revised edition of "Gray's Field and Forest Botany." Am I, therefore, to conclude that it is not common in cultivation? It grows about eighteen inches or less in height—leaves are narrow, stems stiff, bearing usually two flowers; color of outer segments white veined with purple, inner segments, and petaloid stigmas purple. There is some variation in color, and I have found a few flowers white with yellow markings, but these are very rare. In the garden, it forms a compact clump—does not crowd itself out, as some plants do. It is in every way a desirable plant for the perennial flower border.

Cheney, Washington. SUSAN TUCKER.

[This beautiful and distinct Iris was figured in the first volume of the first series of "The Native Flowers and Ferns of the United States," from a Colorado specimen. It takes to garden culture in the East very well.]

THE CULTIVATION OF WATER LILIES; A NEGLECTED FEATURE OF GARDENING.—The presence of small streams or brooks in the grounds of suburban residences is not uncommon, yet attempts to make good use of them by cultivating a few aquatic plants—particularly those deliciously-fragrant water lilies so insistently sought in their native haunts—are extremely few. These hardy flowers are easily grown and of less care than most garden flowers; while the pleasing results are in greater proportion. *Nymphæa odorata* is the fragrant white-flowered one above referred to. *N. lutea* is a desirable yellow species of similar type. Both are easily obtained and grown.

CULTIVATION OF THE FRINGED GENTIAN.—*Gentiana crinita* is frequently sought for among hardy perennials; but the fact of its annual nature is overlooked. It is perhaps the handsomest of the genus and it is to be regretted that it cannot be brought into cultivation. But, comparing it with other annuals, it is more desirable than many of the most popular of that class, and it would be a paying operation to someone who would undertake to raise it for sale year by year.

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FRUITS AND VEGETABLES.

STRAWBERRY CULTURE IN MINNESOTA.—The annual report of the Superintendent Central Trial Station of the Minn. Staté Experiment Station includes the following valuable information concerning strawberry culture in that State, much of which will apply elsewhere :

"Our strawberries produced a fairly good crop last year, and are in a fair condition for another season. In cultivating strawberries, we follow the plan of setting the fruit two feet apart in rows four feet apart, and allow all runners to grow ; but in the case of strong growing varieties, like the Bederwood and Crescent, we remove a part of the runners, so that they will not be too thick on the land. We keep the bed well cultivated during the growing season. On the approach of cold weather, generally the latter part of October, or early in November, we put on a covering of straw. We prefer to do this before severe freezing weather, as we like to have the leaves bright and green when they are uncovered in the spring, and very severe freezing without protection will sometimes kill the foliage in autumn. We uncover rather late in the spring, removing most of the straw from over the plants, but leaving as much as possible between them. We do not cultivate in the spring of the year. In covering strawberries we have found rather heavy covering desirable, especially in winters when there is no snow on the ground, since after some winters when we have not had snow the plants have been so weakened by severe freezing that, while they would start into growth, yet they did not have sufficient strength to mature their fruit properly, and as a result a large number of nubbins were formed. We have always found that such plants are not easily moved ; at least not until late in the spring, after they have made a good growth of new roots. If very heavy covering (8 inches solid straw) is to be resorted to, the best plan is to put the rows six feet apart, which allows plenty of room for storing mulch between the rows in the spring. In this place, between the rows, it can be kept until all the danger from frost in the spring has passed, and it is then in convenient place for covering the plants on very frosty nights when they are in flower. There can be no question about the practicability of this latter way of protecting the flowers of strawberry plants from being destroyed by frost, and it should be more generally practiced, since without it the work of growing the plants for nearly two years may be entirely lost. It is our custom to fruit the beds at least two years in succession, and the beds are renewed by mowing off the plants and weeds close to the ground as s on as may be after the crop is gathered. This growth of weeds and plants is then burned on the bed if it is very dry. If the weather is moist so that it is impracticable to get a quick burn on the bed, then the material is either raked into the rows between the beds before burning, or else it is carried off of the bed and burned. I think that much the best way is to burn it on the bed ; but this is not safe except when the material is very dry so that it will burn quickly. If it is at all moist, and lies over the plants and slowly burns, it is apt to kill them out.

As soon as the burning is over, we put on a riding corn cultivator and go over the rows several times, leaving a strip of plants about 16 inches wide for each row. The space between the rows is kept well cultivated until the plants which have been left have started, when the rows are gone over and the beds thinned by taking out the old and weak plants so that they will stand about six inches apart each way. With this treatment of the bed we have generally got as good results from the second crop as from the first.

We have grown 56 varieties of strawberries this year. Bederwood seems to be the best all-round perfect flowering variety, either for home use or for general marketing. Its special value for recommending to beginners lies in the fact of its being so very vigorous and productive, and that it is bi-sexual, not requiring any other plant near it for fertilization. The fruit is rather soft, but does very well for home use and the near market. The Haverland is a fine, light-colored berry that is very productive. The Warfield has not been as productive with us for the last few years as previously, but holds on well with many growers in this vicinity. I am inclined to think that our plants have degenerated and that we should renew our stock of plants of it. William Belt produces large fruit, but is not sufficiently productive. Marshall is of about the same value

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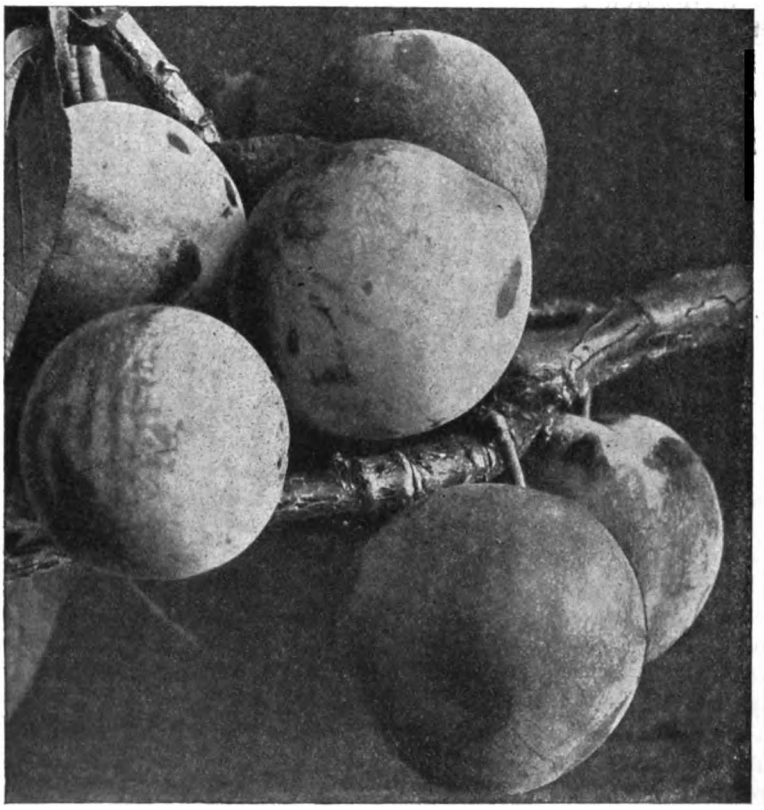
as William Belt. Nick Ohmer is a light red, short-bodied berry of good quality that has been fairly productive. Hunn is a variety sent out by the New York Experiment Station at Geneva. It is a late pistillate sort, and it is recommended that Gandy be used to produce pollen for it. We received 50 plants two years ago. They made a good growth the first year, but the second were so badly rusted that the crop was ruined. Bissel had done fairly well. Mary is a very desirable pistillate sort of light red color, and very productive. Ridgeway is a good late, light red berry of firm flesh. Glen Mary is a light red, conical berry, that is fairly productive. Lovett has been very productive in years past, but this year did not do so well as usual. Crescent seems to be as reliable as ever, and while the fruit is small and of rather inferior quality, yet it is so very vigorous and productive that I am inclined to think that it is one of the most profitable sorts for planting in severe locations."



ABUNDANCE PLUM.

MOTH TRAPS.—Many of the insect pests of the orchard proceed from the work of the night-flying insects. The Codling Moth, the progenitor of the "worm" that is so destructive of the apple crop, is one of the worst of these. Mr. S. A. Hazeltine, of Springfield, Mo., has invented a trap by which the moths can be caught in large numbers, before they have had much time to deposit their eggs in the young fruit. There seems no reason why such an invention should not be of value to the successful orchardist.

THE JAPAN PLUMS.—What are known as Japan Plums are improvements from a species of *Prunus* native to Japan. It seems intermediate between the common wild plum of our country, *Prunus Americana*, and the common garden plum, *Prunus domestica*. It is a better plum than our wild species gives us, though not equal to our garden plum. It is, however, free from many of the troubles that make plum raising here so difficult, and on that account has attained to great popularity. The cut annexed represents the variety known as "Abundance," which, after a four years' test in comparison, Prof. John Craig of Cornell University, regards as desirable. He says, "When the Abundance is well thinned, it is certainly an excellent plum, and one which most persons delight to eat." By his kindness we have been permitted to reproduce the illustration here.

PYRUS JAPONICA JELLY.—Peel the Japan Pears as thin as possible, throwing the fruit into a basin of cold water to keep it from discoloring. Allow for each pound of fruit three

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pints of cold water, put the fruits into a preserving-pan, bring them quickly to the boil, and let them boil for one hour until quite soft. Strain the water from the fruit, pressing out the juice only. Weigh the water, and allow a pound of the best cane-sugar to each pound of water. Put the sugar and water into a clean preserving-pan, and boil quickly, stirring constantly after the sugar is melted. When a little dropped on a plate jellies pour at once into hot jelly-moulds or gallipots. Cover while hot with white pasted paper, and store in the usual way. A nice jam can be made as well of the Pears—for this they must be cored—allowing a pint of water to each pound of fruit, the water and fruit being weighed together. Allow as for the jelly a pound of each—the fruit and sugar. Put on together in the preserving-pan, and boil till a little jellies quickly on a plate.—*Gardening Illustrated.*

SERVING BLUEBERRIES.—Blueberries would be good eating at any season of the year, but coming as they do between the last picking of strawberries and the first peaches and other larger fruits, they are doubly welcome. Then, too, they are such a firm, meaty little berry that there is almost no limit to the wholesome dishes that may be concocted with them. To serve blueberries in perfection uncooked, make a plain or lemon-flavored syrup with granulated sugar ; when cold, pour over the berries, let stand half an hour, and serve very cold.

Country Gentleman.

BEES INJURED BY SPRAYING FRUIT BLOSSOMS.—On page 69, Mrs. Bowerman says that "the bees have such a struggle for existence on account of the spraying of fruit trees in blossoming time." This must certainly be a slip of the pen or a typographical error. Nobody sprays trees in blossom. Paris Green kills the blossoms, and all writers write against any such doings as that. After the blossoming time, when the fruit is as large as peas, the spraying takes place. But there are exceptions to every rule. Thinking over this spraying business, my feet brought me to a gooseberry bush, all in full bloom. Looking over the bush, I noticed that the Currant worm was busy devouring its leaves. There are several ways of treating these worms—one is to jar the limbs with a stick, when the worms fall to the ground and they may be trampled to death. Another way, with less exertion, is to use Hellebore, slug shot and Paris Green. Either of the latter will slay them. The gooseberry blossoms furnish much honey to the bees. Each blossom hangs with its opening downwards. It is hardly possible to force Paris Green into the tube of the blossoms, unless one strives to do so. But we who spray do not try to do anything of the kind, and I feel confident that not an infinitesimal drop ever penetrates to the bottom of the tube where the honey is secreted. In another place, Mrs. Bowerman says, "Among those that grow to large trees are the Cornus, Sumach," etc. These trees are very small in this country—ten or twelve feet mostly.

Festus, Mo. F. K. STEELE.

STONE-SPLITTING IN PEACHES.—Most people are familiar with the fact that, in opening peaches, the two halves of the stone will sometimes be found separated. Examined by a good pocket lens, the mycelium of a fungus will be found connected with this condition. There seem to have been no carefully-conducted observations on this stone-splitting state, but from analogy one might infer that the fungus had to do mainly with the result. If there had been any exposure to the air, this inference would not be warranted, as a spore might float on the diseased portion, but in this sealed-up state, it can only be supposed that a spore made its entrance into the fruit in its early condition, and grew with the fruit's growth.

THE PHYLLOXERA IN CALIFORNIA.—Mr. Geo. Husmann, whose scientific and practical knowledge of grape-growing and wine-making is so widely known, is in accord with the conductors of MEEHANS' MONTHLY, in the belief that State laws and ordinances are utterly ineffective in preventing the incursion of insect pests. In spite of the most rigid watchfulness, Europe could not prevent the introduction of the Grape Phylloxera, nor has Canada been able to exclude the San Jose Scale. Mr. Husmann now states that, for all the State laws, the Phylloxera has obtained a foothold in California, and, instead of shouting for more law, the grape-growers had better follow the lead of France, and graft on resistant vines.

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BIOGRAPHY AND LITERATURE.

PRIMEVAL MAN.

With brutes alone he armed himself for war;
Free to the winds his long locks dancing flew,
And at his prowling enemy afar
He shot his death-shaft from the nervy yew;
In morning's mist his shrill-voiced bugle blew,
And with the rising sun on tall rocks strode,
And bounding through the gemmed and sparkling dew,
The rose of health, that in his full cheek glowed,
Told of the pure, fresh stream that there enkindling flowed. PERCIVAL.

A PRACTICAL TEXT BOOK OF PLANT PHYSIOLOGY.—By Daniel Trembly McDougal, Ph. D., New York: published by Longman, Green & Co. In every-day language, the term "practical" is employed to indicate that which rests on the observation of the common people, aside from any learned or scientific deduction. But this work is addressed to those already well advanced in what is known as the "higher education." Only those who are well versed in Greek and Latin will comprehend the position of the author—so numerous are the technical terms employed. Most botanical authors give a glossary, explaining these terms, but this is not given here. Indeed, the author seems to take it for granted that his readers are versed in German and French also—the references to works in these languages are numerous.

Dr. McDougal appears in this work to have been a devoted student of German biologists, who are certainly doing good work in microscopic botany. A similar study of American progress in the knowledge of plant life would not have injured the value of Dr. McDougal's book. As an illustration he quotes from the "Botanisches Zeitung" for 1891, and from it copies an illustration of a pine branch that had curved though the wood was made five years ago. If Dr. McD. had been as familiar with American observations as with German, he would have credited this discovery to Professor Bessey, of Lincoln University, many years ago. Again, had he been a reader of the proceedings of the Academy of Natural Sciences of Philadelphia, he would not have printed all the nonsense about *Lactuca Scariola* (not *L. scariola* as printed) that he dwells upon so much. In view of the fact that the Prickly Lettuce is *not* a compass plant, the explanation that it is a compass plant by reason of the "phytolytic movements of chloroplasts in exposed cells, paraphototropic reactions, and photeotic, or nyctitropic movements of leaves" seems amusing. It reminds one of the learned explanations given for the fact (?) that we may pile any quantity of living fish in a vesselful of water without the water flowing over the sides!

The weaknesses evident in this book, seem, however, common to all of the class. Very few of them are up to the times, and the newer works seem only apologies for what has been done, while preparing material for further apologizing hereafter. One may fairly say that the book is a good one, and will be welcome to the class for whom it is written.

JAPANESE VARNISH.—The English name for *Ailanthus glandulosa*—Japanese Varnish—is a most inappropriate one; it is neither Japanese nor a varnish tree. C. W. G.

The Japanese Varnish Tree—that is, the tree from which the Japanese get the lacquer varnish—is *Rhus Vernix*. *Koelreuteria paniculata* has also been called Varnish Tree. It is hard to keep up with these mixtures of common names. Botanists get confused with their Latin ones at times. Even our scholarly correspondent does not seem to have noticed the grammatical error in the specific name. The name intended by the original author was *Ailantus*, which is feminine—when *glandulosa* would be all right. But *Ailanthus*, as incorrectly used, being masculine, would require *glandulosus*

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YEAR BOOK OF THE UNITED STATES DEPARTMENT OF AGRICULTURE FOR 1900.—This issue has for a frontispiece a portrait of the late William Saunders, for many years head of the experiment ground. This, with an account of his life-work, is one of the best tributes to the memory of this deserving man that we have seen. The full and complete history of the introduction of the Date Palm to our country is especially interesting by reason of recent inquiries in regard to its propagation. In this issue MEEHANS' MONTHLY is able to add to the information given in the year book in regard to this. The fig chapter is particularly instructive in view of what has been written in regard to the necessity for fertilization. It now appears, what few if any of us knew before, that the fine Smyrna Fig, that withers if not pollenized by the Fig Wasp, is wholly pistillate, and we are to infer that the figs of our garden that fruit freely without the fig insect have some few male flowers in them. It will now be in order to examine the fruits of the figs to see if the seed is really perfect or not. A few minutes with an exact fact is worth pages of speculation. On the whole this volume of the Government year book is one of the most valuable of the series.

OUR FERNS IN THEIR HAUNTS.—By Prof. Willard Nelson Clute, New York: Frederick Stokes Co.

Some writer has said that it should be a penitentiary offense to issue a new book on an old subject, unless it tells us something new, or presents old subjects in a new light. Considering how many popular works have been issued regarding ferns, the writer indicated might be prepared to indict the author of this. But he would be agreeably disappointed, for it seems as fresh to the reader as if a popular work on ferns had never been issued before. All our native ferns are figured, and all about them told in a taking, pleasant style. Undoubtedly the book will have a wide and ready sale among fern-lovers everywhere.

HENDERSON'S PICTURESQUE GARDENS AND ORNAMENTAL GARDENING.—Illustrated by Charles Henderson: published by Peter Henderson & Co., New York. To say this is one of the most useful and beautiful works of the times on practical landscape gardening is no more than due to Mr. Henderson. There are several hundred illustrations of beauty spots in large and small gardens that afford admirable hints for those who would make beauty where plainness only ruled before.

SUGGESTED BY CLARKIA.—The lateness of the season in the garden, on account of the cold and wet weather we have had all during spring, must also be responsible that I too was late in reading the May number of your valuable magazine. I beg to be excused when I also so late offer my congratulation on the seventy-fifth birthday of Mr. Meehan, Senior, with the wish that his useful life may for a long while be spared to enjoy the beauties of this world, which are so abundantly around us if we have an eye for them, which is truth realized by you.

The main picture in your MONTHLY is the *Clarkia*, and as I saw it, memories of my first garden bed I had as a child returned as fresh to my mind as if I had it only a little while ago. I must tell you of it; perhaps it will stir the hearts of some of your readers to provide some places for the children to dig in the ground and plant something, however simple a seed or plant it may be.

I have often been asked how it came that I knew so many flowers and all about the garden. It is as natural to me as the air we breathe, and all I know has come in the way of no special effort or training—only to be active and industrious from earliest youth—such was my bringing up. One spring it was decided I should have a flower bed of my own, and my father circled off a round place under the big pear tree, where nothing else would grow—so was said. But I made it bloom the first season, and many a small bouquet from it was carried to my teacher at the school. I could not keep all the beauty to myself which grew there, and to it belonged the *Clarkia—Schöne Clarkia*, as the young student at our high school, who gave me the plants over the hedge from his mother's garden adjoining ours, told me the name it had ("Schöne" is beautiful), and *Schöne Clarkia* only it has been with me in German ever since. It must be now nearly fifty-five years ago, and not long after they were brought as a beautiful variety

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from this country to my native Germany. Of botany, I did at that time know very little, except what we learned at school in natural history lessons, which included all nature, of animals, insects, fishes, plants, the earth and all it was made of and contained, and consequently was limited in the single branches, as could not well be otherwise, only giving a general idea of the most necessary things worth knowing.

But I assure you, my *Clarkia* I raised was far prettier and larger in flower than your picture in the MONTHLY. Am I partial? A little, perhaps, but the single blossoms of mine were as large as a half silver dollar, at least, and of a color the clearest resemblance to those shades of the *Rhexia Virginica*, or Meadow Beauty; the stems a shade darker and the whole an airy, beautiful blossom. And while I have some space yet left here, though it is personal, shall I tell you what became of the youth who loved the flowers so well? He being the oldest son of a minister's widow, with a large family and a small income, set out, after his graduation from the high school, as one of the pioneers to settle in our American Great West, and the most interesting news of him which came afterwards was when he wrote to his mother, "We have built us a log cabin (a block house) and, as a great luxury, I have brought home, from a hundred miles' journey, for my wife, a bureau with drawers and two real chairs for us to sit on." Truly the rulings in this universe are wonderful to contemplate. The migration of nations, which started in Asia Minor four hundred years after Christ, and rested for centuries in Northern Germany, was set in motion again to people this continent, and the hard-working tillers of the soil have a great share in its rapid and most rich and fair development. *Let us all not forget this.* I beg you to excuse my long letter, but the memory of the "*Schöne Clarkia*" is responsible for it.

Hartford, Conn. MRS. WILHELMINE SELIGER.

[The larger-flowered Clarkia referred to by our correspondent is probably *C. pulchella.*]

"FUNGOUS" AND "FUNGOID" DISEASES.—It is surprising that scientific people, of all classes, should so loosely employ misleading terms. For a long time they were persistently telling us about "fungoid" diseases,—that is to say, a disease that is like a fungus,—but the persistent showing up of the absurdity of the phrase by the conductors of MEEHANS' MONTHLY has caused the general dropping of the "fungoid" expression. But they have substituted for it one no less meaningless. They are now "fungous" diseases—that is to say, a disease of the character or consistence of a fungus! After a while they will come to see that fungus disease, that is to say a disease in relation to or in connection with a fungus, is a much better expression.

In connection with this, it may be noted that the Bulletin of the Connecticut Experiment Station has an exhaustive bibliography of "fungous" diseases. Over one thousand references are given to works where some "fungous" disease has been described. The name of the disease the plant affected, and the botanical name of the "fungous" is given. It will be perfectly bewildering to the practical man, though of great value to abstract botanical science. Nearly every plant is given a special name for its "disease," and almost all a special "fungous" acting on it. When it is known that copper solutions are effective against any and all of these "fungouses," it is hardly worth the while of the cultivator to burden his memory with over a thousand new names—many of which even the botanists themselves can scarcely remember without reference when they desire to discuss "fungous" subjects.

AMARYLLIS HALLII.—The volume of "Garden and Forest," cited on page 92 of MEEHANS' MONTHLY, gives a full record of the origin of the name Amaryllis Hallii, by the lamented botanist Sereno Watson, to whom we are apparently indebted for the identification of this plant with *Lycoris squamigera.* Watson states that *Amaryllis Hallii* was brought originally from China by Dr. George R. Hall, of Bristol, R. I. It was distributed by Messrs. Hovey, the Boston seedsmen. Dr. Hall had it in his garden before 1860, and he states that it is often planted by the Chinese in their cemeteries. The name *Amaryllis Hallii* was perhaps never formally described as such in regular botanical sources, but it must be regarded as fully accounted for in the proper way by a competent botanist. WILHELM MILLER.

Ithaca, New York

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THF CHEROKEE INDIANS.—A visit I made to the Cherokee reservation interested me greatly. There little sharp-roofed log cabins were the first thing that attracted my attention. Inside, they have beds, chairs, tables, tableware and cooking utensils. I was very much surprised when the lady of the house poured me out a nice cup of coffee at the dinner of bread, beans and bacon. "Yes," she said, "we Injuns drink coffee."

The women folk love bright colors in dress and gaudy jewelry. The men have about given up the chase; they fish a good deal yet. They work at odd jobs once in a while—at least until enough is earned to buy another cheap suit of clothes, and then they take up their lives of loafing again.

To the women is left most of the work in the patches of corn, beans and potatoes. We met an old Indian on our way. "O see!" said our driver, trying to show off his knowledge of the Indian tongue, "Good-evening, Mr. C.," replied the old fellow in the most dignified way.

We lost a small piece of our harness and could go no further, so we all dismounted to search for it. A small Indian boy followed slowly along behind us searching every inch of ground, and in a few minutes he picked it up and held it out. He seemed very proud of the money he received for his help.

They have a good school at Yellow Hill, supported by the Church of Friends.

There were three nice buildings when I was there, a boys' dormitory, a schoolhouse and the main building, which contained a chapel, girls' dormitory, parlor, dining-room for all, kitchen and apartments for the teachers.

There were forty-two boys and girls at the school, learning, besides the common English course, housekeeping, cooking, sewing, farming and mechanics. There were some very bright pupils—some very dull, as in all schools.

The children said, when they went home on visits their parents wished them to speak "Inglus," so the younger ones could learn it. There are some very quaint sayings on record. A little girl cried out with pain and when asked what was the matter said the bed had stepped on her foot. Another, when she saw the tea-kettle boil over, said the water was running away. Another was being taught the catechism. "How many persons in the Godhead?" replied, "three, the Father, the Son and the Moon." M. M. Y.

GENERAL NOTES.

POTATO BUTTONS.—We have real ivory and vegetable ivory, and not many years since, the threatened ivory famine produced that remarkable imitation we know as celluloid, which has been successfully employed for every possible use, from billiard balls to piano keys To-day the imitation has itself been imitated, and that, too, by a curious preparation of potato pulp! The inventor is a Dutchman named Knipers. He treats the waste pulp, itself a residue from the manufacture of the artificial potato flour, with a solution of acid and glycerine. The resulting compound takes the form of a species of stickfast, which is dried and ground to powder. This powder is moulded into blocks, with the aid of water, very much as one uses plaster of Paris. There is, however, this important difference. The new compound can be cut and turned and bored and used for every purpose, from buttons upwards, in which it was formerly customary to use bone and ivory.—London *Journal of Horticulture.*

CITY TAXES.—It is said there are towns in Germany which are free from taxation by reason of forest profits—forests owned by the city corporations. American cities daren't own anything. When the writer opened a campaign for small parks in Philadelphia, the plan was to take a large tract, make a small park of a portion, and then sell the adjacent properties at improved figures to buy more plots with. But the law department decided that the city could not enter into real estate operations. Indeed, it is doubtful whether any city in America can do anything long but raise taxes on real estate. Small towns can do better than larger ones. When they grow to a size that "nobody knows who's who," except as designing persons tell them, ignorance, or even corruption, rules. Imagine any of our large cities running a forest for revenue!

BULBLET ON TULIP STEM.—Prof. Waugh, Vermont Agricultural College, sends a tulip stem with a bulblet—we might say a fine bulb—growing from the axis of a stem-leaf.

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RENANTHERA COCCINEA.—One of the grandest of the orchid family in bloom in the greenhouses of Miss Helen Gould, at Irvington-on-Hudson, N. Y., in the early part of July, was the Chinese *Renanthera coccinea*. To say that there were many hundreds of its large, red, butterfly-like flowers on the one plant is no exaggeration. Mr. Ferdinand Mangold is the able gardener in charge of these plants.

PLANT NAMES.—The objection is often made that the names given by botanists are hard to learn, and therefore common names, as they are called, are excusable. But reflection will show that this cannot be the real reason, for many, like Rhododendron, Chrysanthemum, Dahlia, and others that might be named, have become common, though hard enough for any one to learn. The real reason is the fear of being thought affected—it seems like using Latin sentences in the every-day affairs of life. There is some good ground for this feeling; but unfortunately it has been nursed to such a foolish extent that utter ignorance of all solid knowledge has come to be the chief recommendation in polite society. This is well illustrated in a report of a select library in Philadelphia, established by ladies of what is known as the better class, mainly for persons in their own sphere in life. Of the 2831 books taken out in 1900, 426 represented magazines, poetry and essays, juveniles 45, French 5, history and biography 202, science and art 8, fiction 2109. Fiction undoubtedly has a legitimate place among the pleasures of life, but it requires more courage than human nature is credited with for eight ladies to use the language of science or art among 2109 novel readers.

SHADE AND SUNLIGHT IN VEGETABLE GROWING.—In the long past, the writer had an interest in a legal trial. The attorney for one side proposed to his client that he would raise a certain point in the argument. When asked if it was not absurd, the reply was that he believed the judge and jury, the other side included, would know no better—and the lawyer did win his case. All this penalty of ignorance is continually being paid. In a Pennsylvania case, recently, the question turned on the value of ground taken for street purposes. The owner used the ground for market gardening purposes. The special road jury awarded him $3000. The street had to be elevated above the normal level of the ground. The owner of the ground appealed to a higher court for $6000 additional, on the ground that he not only lost this much ground, but that the embankment, probably fifteen or twenty feet high, shaded the rest of his ground to a damage to the crops—and the jury awarded him the additional sum!

SMALL PARK GIFTS.—The gifts of valuable tracts of land in the vicinity of crowded towns and cities for small parks and recreation grounds have become frequent, of late, both in America and the Old World. The London papers recently announced that a Mr. Horniman, whose property was within the corporate limits of that great city, had deeded his mansion, house and grounds to the city for a public museum and small park. The grounds covered nine and a half acres, and are estimated as worth between a quarter and half a million dollars.

CUT FLOWERS IN AMERICA.—A paragraph going the rounds says: "The Agricultural Department gives some interesting statistics showing the surprising growth of the cut-flower business in recent years. The retail value of cut flowers sold annually is now $12,500,000. Of this no less than $6,000,000 is paid for roses, $4,000,000 for violets and $500,000 for chrysanthemums." Roses and violets are popular; but it seems incredible that ten million out of twelve should go for these two items alone. Can it be possible that twice as much money is spent for violets alone, as for Orchids, Carnations, Lilies, Daffodils, and all other flowers, roses not counted?

FIRE-PROOF WOOD.—Reference to the growth of knowledge in regard to making wood incombustible has occasionally been made in the columns of MEEHANS' MONTHLY. The United States Government, looking to the interest of the navy, finds that wood can be rendered fire-proof in various ways, but that the wood is reduced to such a brittle condition as to be rendered useless for all purposes where a fire-proof character would be most desirable.

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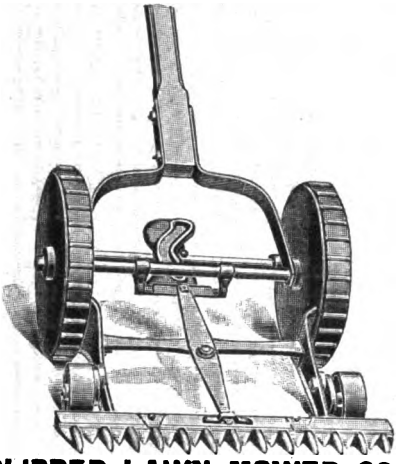

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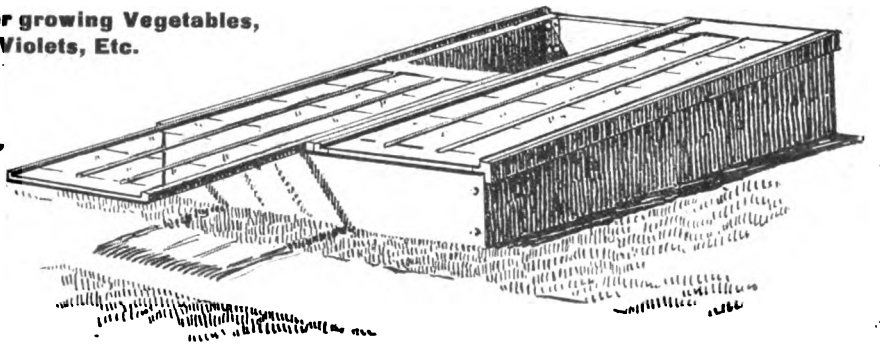

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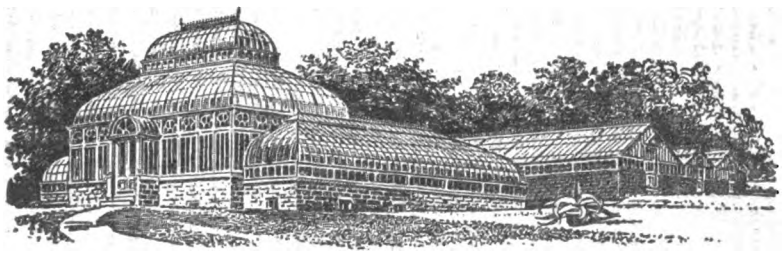

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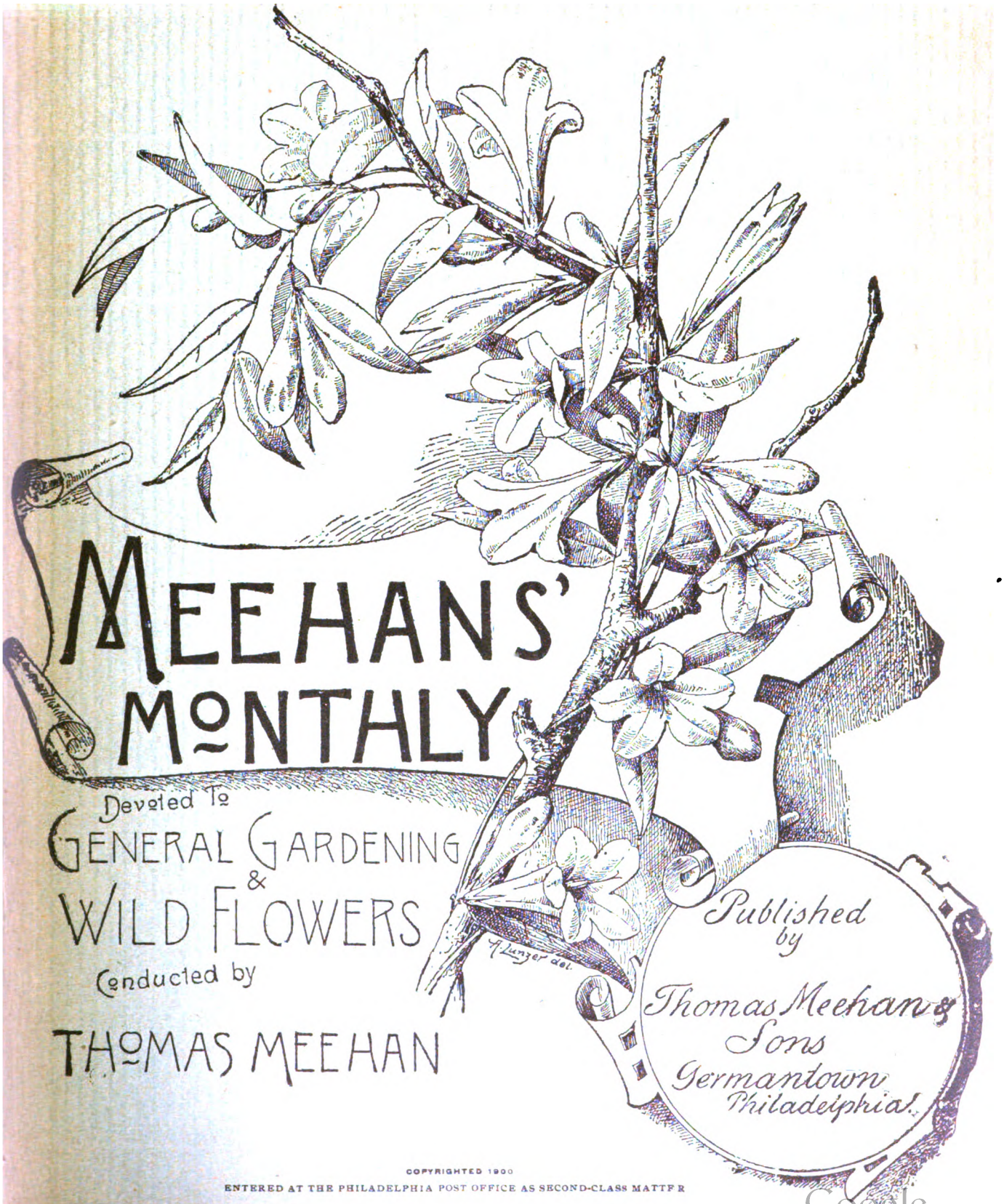

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GENERAL GARDENING
&
WILD FLOWERS

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THOMAS MEEHAN

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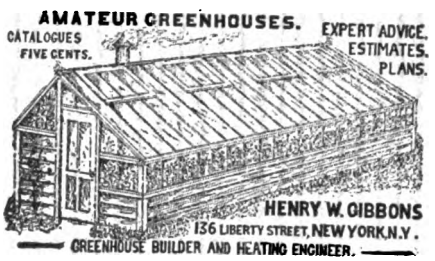

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CALLICARPA AMERICANA

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CALLICARPA AMERICANA.

FRENCH MULBERRY.

NATURAL ORDER, VERBENACEÆ.

CALLICARPA AMERICANA, Linnæus.—A shrub, two to five feet high, the twigs and young leaves stellate-scurfy, the mature leaves glabrous or nearly so, and glandular-dotted. Twigs terete; leaves thin, ovate, pinnately-veined, slender-petioled, acute or acuminate at the apex, crenate-dentate nearly to the entire base, three to six inches long, one and a half to three inches wide; cymes many-flowered, short-peduncled; pedicels very short; calyx teeth much shorter than the tube; corolla pale blue, about one and a half lines long; fruit violet-blue, globose, about a line and a half in diameter, very conspicuous in autumn. Britton and Brown's *Illustrated Flora of the Northern States and Canada*. See also Gray's *Manual of the Botany of the Northern United States*; Chapman's *Flora of the Southern United States*, and Wood's *Class-book of Botany*.

The beautiful family of Vervaines, or, as we say, *Verbenaceæ*, comprises some seventy-five genera, and are widely scattered over the four quarters of the globe; but, as genera, the family has not a large representation among the native flowers of the United States, *Verbena*, *Lippia*, and our present subject, *Callicarpa*, covering most of the ground. Indeed, the last named has but the one species to represent it, and this, *Callicarpa Americana*, has but a slender title to a position in the United States Flora, being confined to the comparatively small territory between Texas and Arkansas, and from Virginia to Florida. It is not recorded to have been found north of the Potomac. The species, however, become more numerous as we go southwardly, a large number having been described from Mexico, Brazil, and contiguous regions. Strange to say, a species, native of Eastern Asia, is so closely related to ours that the two were once believed to be identical. It is remarkable that so many comparatively local plants, on the eastern seaboard of our country, should be found in this part of Asia, with so many thousand miles between, wherein no close relatives are found.

Our plant has reached a popular position among the native flowers of the United States by reason of the beautiful violet-blue berries which it produces in the autumn, and which continue attractive till far into the winter season. Indeed, in the far south, where severe frosts are rare, they give a cheerful character to the floral scenery until spring returns again. The flowers, as seen in our picture, are borne on cymes in the axils of the leaves, but, as the berries enlarge, they occupy so much space that they appear as if in verticils around the stems. In addition to the part the berries take in adding beauty to the autumn scenery, the leaves also add largely to the effect by the lively tints they assume at that season. The brilliant fruit has attracted the botanist as well as the popular lover of flowers, which is attested by its name, *Callicarpa*, as given to the genus by Linnæus. This is derived from two Greek words, *kallos*, beauty, and *carpos*, fruit,—the application in this case being apparent. The common names also have relation to the same characteristics. Willdenow, the leading follower of Linnæus in the reorganization of botany, translates for his German readers the Linnæan name, and applies the term "Shönbeere" to the whole genus. Nuttall says in the South the common name, in his time, was Bermudian Mulberry; Barton notes it as Barbadoes Mulberry; Rafinesque says it is "Somerbush,"—but all modern authors term it French Mulberry. It may be here noted that, while botanical authors are particular in searching out and adopting the prior scientific names of plants, they seldom give the same attention to popular names. It has come to be a belief that a botanist, in scientifically describing anything, must at the same time present a common one. In many cases one is invented for the occasion, though, with a little diligence, names really common might be found to have been already given in abundance. It is the great number of common names for a particular plant that renders

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identification difficult. Outside of this they are often desirable, and serve in many cases to indicate the popular impression of some peculiar characteristic of the plant. In the present case, we may assume that the term mulberry has relation to some similarity between a cluster of berries and that fruit,—but why a French Mulberry or a Bermudian Mulberry, is a thought worth investigating. In like manner, the name "Somerbush," as quoted by Rafinesque, may have a deeper meaning than would appear on the surface.

In connection with the name of Somerbush, which Rafinesque gives as the common name, he states, in his "Medical Flora," that the "purple berries dye wool purple with alum. They are edible, sweetish, and astringent. Leaves useful in decoctions for dropsies." In relation to this, Dr. Francis Peyre Porcher says, in his "Resources of the Southern Fields and Forests:" "This is said to be useful in dropsical complaints. It bears very pretty red berries, growing in whorls around the stem, which are slightly sweetish to the taste. I could not extract much coloring matter from their skins with vinegar or alum" Dr. Royle says that a closely related species is employed in medicine by the East Indian natives; and Dr. Lindley remarks, on the same species noted by Dr. Royle, *Callicarpa lanata*, that the bark has a peculiar subaromatic and slightly bitter taste, and is chewed by the Cingalese when they cannot obtain Betel leaves. He further adds that the Malays reckon the plant diuretic. There may be more medical virtue in our plant than has been heretofore discovered.

The reader will have noted how varied are the views of different authors as to the color of the berries. Mr. J. W. Chickering, Jr., describing, in the "Botanical Gazette" for 1879, a beautiful piece of scenery near Fortress Monroe, in Virginia, and noting the plants that entered into the pretty picture, says that the *Callicarpa* was prominent, "with its showy axillary clusters of purple fruit,"—and this probably will characterize the tint as represented in our illustration.

In regard to the general history, it was probably among the earliest to attract attention. Its brilliant fruit would be readily noted. As early as 1700, Dr. Leonard Plukenet figured it in his "Phytologia," a branch from either specimens or drawings, in all probability, sent from Virginia, in 1680, by the Reverend John Banister. It appears in Plukenet's work as *Anonymos baccifera verticillata*. Mark Catesby, who published a history of Virginia and Carolina, in 1743, figures it and describes it as a verticillate, berry-bearing shrub,—the purple berries densely congested. Gronovius, a couple of years later, describes it from specimens received from John Clayton,—the berries this time described as "crimson-purple, smooth, splendid, and particularly showy in the autumn season." It was Linnæus, in 1741, who gave the genus the name it now bears. Living plants, through Catesby, were introduced to England in 1724.

The young botanist who may be studying the nature and structure of the organs and members of plants, especially in connection with classification, will find, in *Callicarpa*, excellent material. Much has been told of it, but more probably remains to be discovered. The natural order of *Verbenaceæ* is separated from other orders by very slender lines. They have very much in common with Borageworts and Labiates. From the latter they differ in having the carpels so united as to have them appear as one concrete berry, as in the case of our plant, for instance. We may say that a slightly different degree in the power of union makes all the difference. From Borageworts they differ in having but four instead of five fertile stamens, although the ovary has four segments only, as in *Verbenaceæ*. It is simply a case of suppression of an organ that might have been present. The carpels in the Borage wort are wholly separated from each other and admit of a depression in the style, while the *Callicarpa* and other verbenas have the four concrete. All these points have been noted by other botanists. But there is still another natural order that has not been brought into comparison, namely *Monimiaceæ*, closely related to the nutmegs. In most systems of classification, these would be placed far away from Verbenas, because of their numerous stamens and tendency to have flowers of separate sexes. This is an uncertain character.

EXPLANATION OF THE PLATE.—1. Branch from a summer growth, furnished by Mr. Jackson Dawson, of the Bussey Institute. 2. Fruiting fall specimens from Virginia. 3. Flower enlarged, showing the general characters of the various parts. 4. Section of the berry, showing the four-seeded structure of the concrete ovarium.

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WILD FLOWERS AND NATURE.

AFTER THE STORM.

How calm, how beautiful comes on
The stilly hour, when storms are gone;
When warrior winds have died away
And clouds beneath the glancing ray
Melt off, and leave the land and sea
Sleeping in bright tranquillity,—
Fresh, as if Day again were born,
Again upon the lap of Morn!
When the light blossoms, rudely torn
And scatter'd at the whirlwind's will,
Hang floating in the pure air still,
Filling it all with precious balm,
In gratitude for this sweet calm;—
And every drop the thunder showers
Have left upon the grass and flowers
Sparkles, as 'twere that lightning-gem
Whose liquid flame is born of them!

THOMAS MOORE.

VITIS INCISA.—As I have collected *Vitis incisa* in Texas, I would like to mention a few places where I have found it there. First, I saw it June 23, 1899, in the garden of the old explorer of Texas flora, Mr. Reverchon. He planted it in Southern Texas and in his garden. On the sixth of April, 1900, I found it myself on the banks of the Guadalupe River, near Victoria, Southern Texas. On the sixth of September, 1900, I found it, near St. Antonio, in fruit. From the tenth to thirteenth of September, I found it quite often on the banks of the Rio Grande and Devil's River.

E. St. Louis, Mo. HENRY EGGERT.

SELF-SACRIFICE IN NATURE.—To the mind of the writer of this paragraph, one of the weaknesses of the hypotheses of Darwin, Spencer and others, in regard to the "struggle for life" and the "survival of the fittest" as factors in evolution, involves a law of intense selfishness which is not supported by the evidence furnished by a broad view of nature. It has been his privilege to show, in papers read in the past before the American Association for the Advancement of Science, that selfishness in nature is subordinate to self-sacrifice. In a recent review, in the *Journal of Microscopy*, of a German work by Dr. Mühlmann, on human physiology, the reviewer, Prof. Raymond Pearl, of Ann Arbor, Michigan, it is remarked that the author is strongly opposed to a teleological consideration of life-phenomena, and, in order to escape some of the difficulties along this line which his theory involves, he advances some astonishing physiological principles. An example will indicate the nature of these. It is stated that "Saliva is a product of the regressive metamorphosis of the poorly-nourished cells of the salivary gland, and is *useless* to the organism." But surely the saliva is of no service to the cells of the salivary glands that produce it, except in a very small and indirect way. It aids in preparing food, by which it is itself supported, —but the far greater portion of its work is to support other cells in which it has no direct interest. There seems no getting away from the common-sense proposition that, if there be arrangements for eating, something must have been designed to be eaten,—that, in fact, death as well as life is a wise provision of nature.

CLINTONIA BOREALIS.—In the early part of May, I walked out to the woods to collect a few *Dodecatheon Meadia*, or Shooting Stars, to plant in my wild-flower garden. In taking them up, I cut out a clump of earth with the roots and brought them home in that shape, so that they would not receive much of a check to their growth and blooming qualities. They were already showing their blossom buds. Some time afterwards, I noticed a small plant of two narrow leaves, with a greenish yellow perianth (outside of the perianth); inside, it was a bright golden yellow. It had the marks of the lily family. I hunted through Dr. Gray's Manual for its name, and *C. borealis* answered nearer to its looks than any other plant. *Clintonia borealis* was found growing on one of these clumps of earth, beneath a *Dodeca-*

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theon Meadia. There were several differences from Dr. Gray's description. It is not ciliate-leaved, but they are long,—about ten inches,—narrow, a little wider than Blue-grass leaves and smooth. There were two scapes on this plant, three and four inches long; one produced two flowers, the other formed none,—maybe was injured or was hurt in the removal. This plant, with the *D. Meadia* and the *Viola pedata*, variety *bicolor*, grows on the northern slopes of the hills, in this mountainous country. It is a plant which I have never met with heretofore, and would not have seen it this time if I had not unintentionally brought it home. Dr. Gray says its habitat is "cold, moist woods in Massachusetts and Wisconsin and northward and southward along the Alleghenies."

Festus, Mo. F. K. STEELE.

STERILITY OF HYBRIDS.—Scientific men are fond of throwing it up to practical people that they are behind the times; but devotees of science are often among the crowd that live in glass houses and yet throw stones. Horticulturists have long ago learned that hybrids are as fertile as their parents; and orchids, gesneriaceous plants, and many other classes furnish abundant evidence. But that hybrids are sterile, or generally sterile, is still a doctrine on which many pretty "theories" are founded by leaders in science.

GROWING PLANTS REPRESENTED BY PHOTOGRAPHY.—We are doubtless the first to tell of the curious application which may be used, by the sinematograph and chronophotograph in general, to synthetize, in some instances, different successive growths of a plant or flower.

The U. S. Dept. of Agriculture is making ready to put, to practical use, this original idea. A chronophotographic apparatus has been placed in one of the division beds of vegetable pathology, the mission of which is to take successive numbers of photographs of quite a small oak. It is needless to say that the functionary is automatic.

It takes one photograph every hour, even at night, at which time it is supplied by electric light. It can continue taking pictures this way to the end, and has the power of throwing on a screen the development of a small shrub from the time it appears above the ground until it is a real bouquet of leaves; it has been proposed to apply the apparatus and methods to observing plant sicknesses, of all kinds, which destroy vegetables, in order to make instructive projections in schools and stations where agriculture is taught.—*Nature*.

WILD PARSNIP AND RADISH POISONING.—We read, occasionally, in the newspapers, about wild parsnip poisoning. It is well known that the Water Parsnips, *Sium lineare*, *S. angustifolium*, etc., are poisonous when eaten. The Cow Parsnip, *Heracleum lanatum*, is said not to be poisonous; but I, for one, would not care to eat it. The Meadow Parsnips, *Thaspium*, of various species, are considered harmless. Some people call the Water Hemlocks (*Cicuta* sp.) by the name Cow Parsnips. They are virulently poisonous. But I do not think it is very well known that the common Garden Parsnip, *Pastinaca sativa*, when it runs wild, becomes a skin-poison, somewhat after the manner of *Rhus Toxicodendron*. It is especially poisonous when the dew is on; but when dry is said to be entirely safe. Upon children's hands and feet, this wild parsnip will set up quite a smart rash; but a wash of salt water is said to be a speedy cure.

It is perhaps not very well known that, in some circumstances, radishes, and especially the black radish, are said to be poisonous. The European Wild Radish, *Raphanus Raphanistrum*, is considered to be somewhat poisonous. In our country, it has become a great pest in the oat fields, but I never heard of its poisoning anybody. In Japan, radishes are largely eaten by all classes, and there, if anywhere, radish poisoning ought to be looked for.

Merchantville, N. J. C. W. GREENE.

[Remembering how much error exists in determining the plants in poisoning cases, specimens were procured from the doctor, in attendance on a fatal poisoning case by "parsnips," at Danville, Pa., a few years ago. There could be no doubt of the specimens of the roots being identical with those which did the poisoning, as one of them had the teeth-marks of the children. These were planted, and grew to be the real garden parsnips. Just why they should be more injurious, in a wild condition than in a cultivated one, has not been explained.]

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GENERAL GARDENING.

MY GARDEN.

I love my garden ! dearly love
That little spot of ground !
There's not, methinks (though I may err
In partial pride), a pleasanter
In all the country round.

MRS. SOUTHEY.

SHARING THE PLEASURES OF BEAUTIFUL GROUNDS.—Though a very rare occurrence, there are a few unselfish men willing to run the chances of vandalism and throw open their grounds to the public that they may appreciate and enjoy the beauties of flower and landscape. Doubtless there are many who would not refuse entrance, and it is the number who invite that is small. To the latter, great credit is due for the refining influence that results from touch with the beautiful in nature. They are the same results that have taught the advantages of public parks and playgrounds.

A Sussex naturalist, writing to the London *Gardeners' Chronicle*, says that, "Through the courtesy of W. James, Esq., the lovely grounds of West Dean are open to the public on Tuesdays and Thursdays during the month of June, when the arboretum is in its pride and glory. As the house and church have many interesting associations, the visitor whose taste runs in the direction of archæology and local history, as well as natural scenery, botany and floriculture, will find much to please him. The situation is delightful, nestling, as it does, in a charming valley or den (whence the name of the village), with splendid forest trees, and a rich profusion of wild plants on every hand. The privilege of visiting these lovely grounds is greatly appreciated by the people of Chichester."

In our own country, the summer residence grounds of Hon. Jos. H. Berry, Grosse Pointe Farms, Mich. (suburbs of Detroit), we understand are similarly open to visitors, but at all times. Though quite different from the English place described, both in size and character, the pleasure to the visitor is none the less, for Mr. Berry has a great abundance of flowers and fine young specimen trees. The conservatories contain a wealth of ferns and foliage plants tastily and uniquely arranged at the hands of Mr. Fruck, the gardener.

Some famous grounds in the vicinity of New York, made public for many years, have been closed recently because of vandalism. It is to be deplored that, by the acts of a few people unsusceptible to the better influences of nature, the general public is cut off from so much healthy enjoyment.

It is to be hoped that many other owners of beautiful places may, at least, experiment with the sharing of the pleasures which their grounds afford.

THE ENGLISH LINDEN.—Some forty years ago Mr. Thomas Meehan published a paper, in the Proceedings of the Academy of Natural Sciences of Philadelphia, that attracted some attention at the time, showing that closely related species of the trees of America and Europe differed from each other in one uniform line. Mr. Darwin, in his work on "Plants and Animals under Domestication," frankly admits that the facts are not intelligible under his speculations regarding the origin of species, —nor have they been explained to this day. For instance, the practised eye can tell the European Linden from the American by its close, formal habit,—and oaks, ashes, beeches, and all other classes of trees can be distinguished in like manner. The accompanying illustration of an English Linden, growing at the suburban residence of Dr. Van Horn, in Germantown, shows how close and formal it grows. The American, in a similar fifteen or twenty year old specimen, would be so "sprawly" that one could almost see through it.

This neat, refined habit of growth gives the English Linden a high character in some styles of gardening, especially when in company with buildings and formal grounds. In many respects it is a justly favorite tree with

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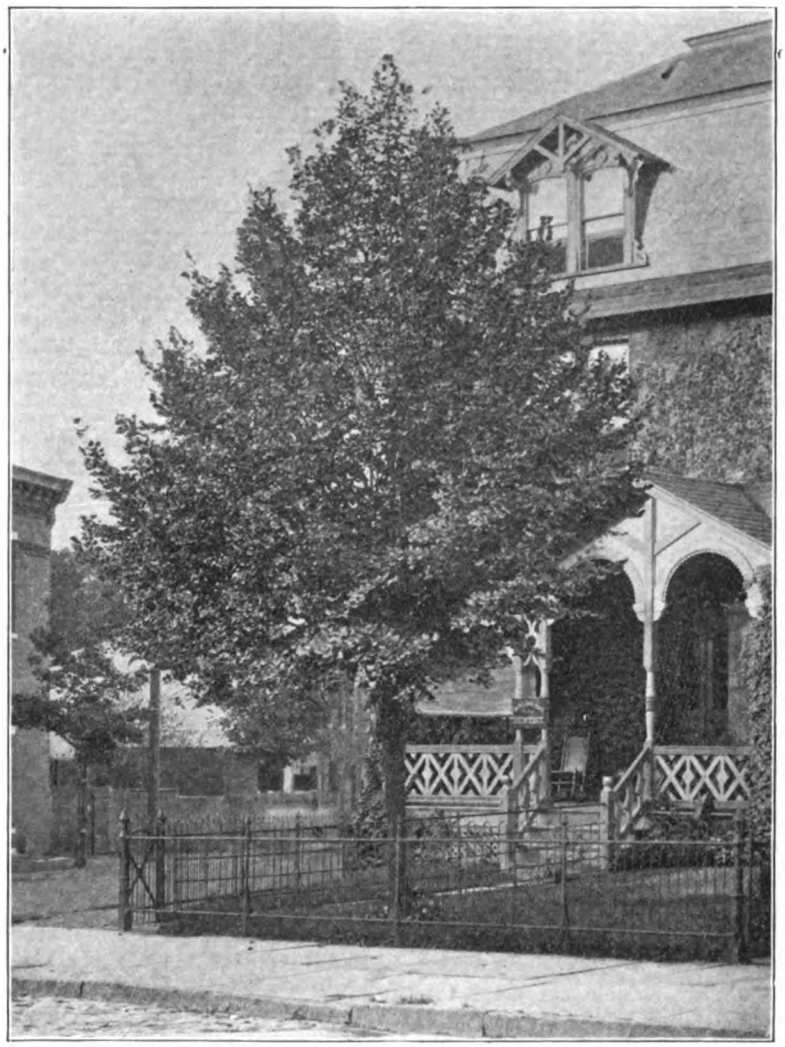
planters. At Newport, R. I., it has proved itself one of the most satisfactory ornamental trees for that locality, where considerable difficulty is experienced in establishing trees in proximity to the seacoast.



THE ENGLISH LINDEN.

THE LIFE-PLANT OF GUADELOUPE. – Under this heading, recently appeared a paragraph in all the leading daily papers of the United States, sent out, by the State Department at Washington, as a document of national importance :—

"Consul Ayme, of Guadeloupe, has sent, with a report to the State Department, dated December 24, 1898, some leaves of a plant growing wild on the island, which he calls the 'life-plant,' on account of its peculiar properties. Mr. Ayme says :

'If any leaf be broken from the plant and pinned by the stem to the wall of a warm room, each of the angles between the undulation of the leaf margin soon throws out a number of very white, threadlike roots. Next, a tiny plant begins to sprout, which, in the course of two or three weeks, attains a height of two or more inches. When the original leaf begins to shrivel, which may take from six weeks to three months, the small plants may be cut out with scissors, and planted, or the whole leaf buried, when the young plants will rapidly attain full size. When cultivated, the plant attains a height of four feet, and produces graceful red and yellow flowers.

'I believe that this plant could be successfully grown as a house plant, and certainly in any ordinary greenhouse. I find that old and new leaves sprout with about the same readiness.'"

Of course, every intelligent lover of gardening recognizes at once our old friend, *Bryophyllum calycinum*, which, for a hundred years or more, has been one of the commonest plants in our gardens, and has become naturalized in all subtropical parts of the globe. Even in our own country, they can be gathered by the cart-load in Florida.

It is not surprising that there is such a lack of intelligence exhibited in so many of our public parks and gardens, when the Government at Washington, with a mighty force of botanists about them, sends out a document like this.

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HETEROGENEOUS GRAFTING.—Horticultural journals are giving currency to a statement that M. Bonnier showed that plants of entirely different families had recently been grafted with success—for example, the maple upon the lilac, the kidney bean upon the castor oil bean, and the cabbage upon the tomato.

This was at the Paris Academy of Sciences. Statements such as these, wholly opposed to the experience of practical men, should not be trundled around without a word of caution. Years ago, a correspondent of the writer, a gentleman of character and caution, wrote that he had succeeded, in Florida, in grafting the Japanese Persimmon on the oak. He was asked for specimens, and kindly sent some. Truly, the scions had budded forth to young branchlets,—but a close examination showed that there was no actual union. The scions fitted tightly in the cleft made in the oak plant, and had managed to suck in enough moisture to permit the pushing out of the growth. They sprouted just as they would have done had they been in a vessel of water. They were dead before the season was over. One may not say Professor Bonnier is wrong,—but may say that unlikely things should be closely tested before being given out as facts.

BIRDS AND INSECTS.—PINUS PALUSTRIS.—In reference to the English Sparrow, am forced to say, with regret, he is a rough—maybe not intentionally, in the mischief he does, but it is a fact. I have found him out to be one of the principal agents in the distribution of the dreaded San Jose Scale insect, and he is mainly responsible for the wide localities infested hereabout.

All my peach trees are greatly infested, and the branches, which I can reach, and which had such fine fruit, and plenty of it, last season, and also set buds for next summer's crop, are all dead now, killed by the scale. I am certain of that. As I have no nursery-grown trees of any fruit variety on our place, but have raised all my trees, apples and pears, cherries and plums, from seed planted by me, which are all in bearing, set out twenty years ago, I cannot otherwise account for the scale, but that it has been brought to our locality by nursery stock in the Keney Park, or other places further away, and then the sparrows have carried it all about, while swarms of them fly from one place to the other and, in their boldness, eat with the chickens, and alight constantly in the nearby trees. It is too bad. I hear that entire orchards are spoiled by the insect.

We have, at present (Jan. 15th), the effects of an ice storm on our trees, lasting already three days, with sunshine but no wind, and so the ice, an inch in thickness, clings to all objects, making a most brilliant sight of dazzling beauty, and I hope will check the scale also, though all fruit prospects seem also in danger.

I have published my observations, in our Hartford *Times*, about the sparrow and the San Jose Scale, and since, it is very evident that some means have been found by the fruit growers to exterminate him, and is at this winter season recommended to be continued before the song birds return in the spring. For a week or two I have hardly seen any sparrows at all, where only a short time ago were flocks of them.

Please allow me the question concerning the *Pinus palustris*, or Georgia Yellow Pine. Does it grow, or have any efforts been made to raise it, as far north as Philadelphia?

I saw, in Prof. Sargeant's "Silva of North America," that, in 1830, Michaux caused some seedlings to be transplanted in France, but without much success. Your authority and valuable experience in this line would be very instructive and interesting.

Hartford, Conn. MRS. W. SELIGER.

[The *Pinus palustris*, Long-leaved or Georgia Yellow Pine, has been planted several times in the Meehans' Nurseries, but without permanent success. One small specimen from North Carolina passed through two winters and then died. Like some other southern plants, possibly it only needs strength through protection for five or six years, when it would stand the winters perfectly.

It was long ago noted, in MEEHANS' MONTHLY, when the Canadian authorities established the embargo against American nurseries, that birds would defy the Custom House authorities, and the San Jose Scale would laugh at them. This has been found true. In spite of the drastic "Stamping out," as these methods are vulgarly called, there is as much San Jose Scale in Canada as in many other places on the American side of the line. The English Sparrow is no worse an offender

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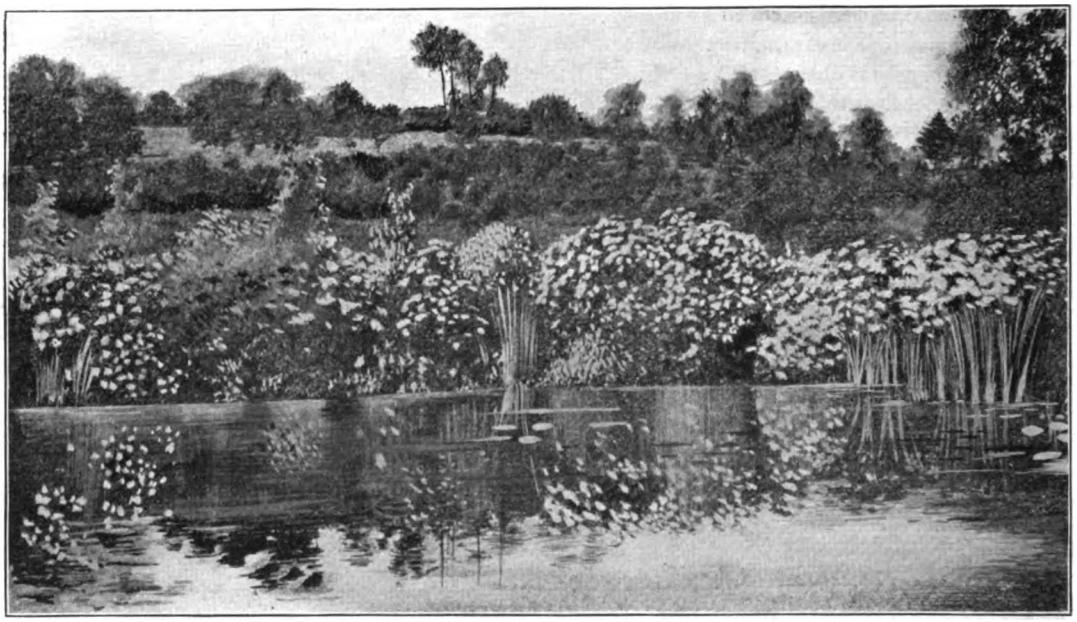
than many other birds,—not so bad, in fact, as some, as he does not travel so far.

It may be repeated here, what MEEHANS' MONTHLY has often expressed, that the San Jose Scale is no worse an enemy to the fruit grower than numerous other species of scale, except in the one point, that it seems capable of more rapid increase than some others. Its destruction is as easy as destruction is in any kind of scale. The intelligent cultivator does not expect to succeed without a continual fight against insects, weeds, small boys, and pests of various descriptions. He is rather glad that there are enemies to fight, as they weed out the inert cultivators, and bring greater rewards to the products of his intelligence and industry. The wagoner who cries to the Jupiter of the law to help him, gets his team out of the mud sooner by having his own shoulder to the wheel.]

EXTERMINATION OF MEDICINAL PLANTS.—The curse of professional root-diggers, who systematically traverse the country, devouring with the avidity of seventeen-year locusts, threatens seriously the annihilation of some of our medicinal plants. For the past few years, the demand has been especially for Ginseng, resulting in its almost complete disappearance from former haunts, after two or three seasons of this persistent thievery by traveling diggers. Blood-root has entirely disappeared, from this vicinity, within the remembrance of many; and Goldenseal is extremely rare; also Goldthread. All but the first of these plants were probably secured by local hunters. BESSIE L. PUTNAM.

ELDERBERRY BUSH.—Continuing the observations made in these columns from time to time, that much more might be made in landscape gardening than is made, by studying the special characteristics of trees with a view to harmonizing them with special conditions, the common Elderberry Bush, *Sambucus Canadensis*, deserves notice as a plant especially adapted to beautifying the lines of streams or water courses. They seem to love to grow in these situations. One of the pleasures of a small stream through one's grounds, is the air of coolness it suggests during the warm season. It is, of course, cool in the vicinity of a running stream,—but for all, it seems cooler than it really is. The Elderberry, with its huge umbels of white flowers, adds to this pleasant illusion. The accompanying sketch of an Elderberry-lined pond represents a scene in the Arnold Arboretum, near Boston, and was originally prepared by Mr. A. Rheder for Möller's *Deutsche Gartner Zeitung*.



ELDERBERRY--SAMBUCUS CANADENSIS.

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INSECT PESTS.—Every country has its thorns, thistles, insects, and fungus pests, that make it difficult for the cultivator to get his bread without the sweat of his brow. According to the *Australasian*, of Melbourne, Australia, one of the chief insect pests of that region is one of the leaf-hoppers—or thrips, as it is more common to call them. Roses and other plants in the flower garden can scarcely be cultivated with great success without continual spraying with insecticides; and among the small fruits, the raspberry growers frequently lose 30 per cent. of the fruit through their attacks. It infests the blossoms, and causes such a malformation in the fruit as to render it useless.

NEW OR RARE PLANTS.

THE ENGLISH GOLDEN ASH.—Golden-leaved varieties of ordinary green-leaved plants are peculiar in this, that, while some give an idea of sickliness, others impress us as being models of healthful beauty, and are valued accordingly. The Golden-leaved English Ash is one of these desirable varieties. Probably it is because the shoots of this species of ash are always thick and seemingly vigorous, that the tint of gold in the variety has such a seeming appropriateness. The tree itself has a strikingly healthy and vigorous form. A good idea of this feature may be gathered from the illustration on page 138, which is from a tree about twelve feet high, and is on the grounds of John T. Morris, Esq., Chestnut Hill, Philadelphia.

TREE LOBELIAS.—Every one is familiar with the pretty, blue, annual species of our gardens, and many know the *L. cardinalis*, and *L. syphilitica* of our meadows,—but Lobelias, as trees, seem a remarkable condition in the history of these plants. The *Gardeners' Chronicle* notes that, in Abyssinia, they grow up with stems fifteen or twenty feet high, and look, at a distance, like palm trees.

THE HARDY FLOWER GARDEN.

PROPER LOCATIONS FOR LILAC BUSHES.—The suckering character of common lilacs should be borne in mind when deciding on their location. A slender, neat little plant this year will be a large clump five years hence, with a diameter at the base of perhaps four feet and with abundant capabilities of future increase.

Lilacs make effective screens—and especially in hedge form. Outbuildings are rendered more sightly by their use, while, at the same time, the wealth of bloom furnishes additional beauty to the scene and the very best kind of cut flowers for house decorations. This cutting of the flowers, by the way, likewise acts as a desirable pruning.

The "improved" named varieties of lilacs are frequently grafted on privet roots, in which case suckering does not occur unless roots are finally sent out above the graft.

HERBACEOUS PLANTS AND FERNS—HINTS ON THEIR CULTIVATION. — I am sure I have derived more pleasure from "herbaceous plants" than from any other. The herbaceous plants of our woods and fields are in great variety; and, although there are many most beautiful kinds almost exterminated, speaking of the vicinity of this city (Philadelphia), yet there are hundreds of sorts yet to be found, the looking for and finding the names of which would afford great gratification.

Referring to these as well as to the herbaceous plants of other countries, there is a deal of satisfaction to be derived from their cultivation. While, for the sake of masses of color, bedding plants will always be in demand, they will never occupy the place in the affections of the people that herbaceous plants do. The Veronicas, the Hollyhocks, the larkspurs and the columbines which grew in the garden of our boyhood we never forget. We got to know them then, to know the spot they occupied, and we eagerly watched for their appearance then as for that of some loved friend. It is this reappearance after their winter's absence that makes them so welcome to all.

It is so common to hear persons say, when viewing some woodland beauty, "How I would like to transplant it to my garden!" While it is true that but few succeed in getting such plants to flourish in their gardens, it is nearly always from lack of knowing how to make them feel at home. Let me mention the Trailing Arbutus, *Epigæa repens*, as an illustration. It is the common belief that this lovely flower cannot be transplanted, and

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more than once I have corrected writers who have asserted this in public print. I have transplanted it successfully,—so have many others. Six summers ago, when in England, I saw a nice patch of it in the Bagshot Nurseries ; and many other large nursery firms there offer it for sale. It is not a native there, so that it follows that at some time or other the plants were safely transported from here, seedlings of it being rare. This plant likes shade and moisture and to be undisturbed. It would not thrive in the open garden, but if small, bushy plants with a good ball of earth

THE ENGLISH GOLDEN ASH.

be taken and set in a woodland where the required conditions exist, they will live and flourish.

With native plants, a little care should be taken to provide for them situations as alike as possible to those they have been accustomed to. There are shade-loving plants and those that have grown in open places. It often happens that a partly shady border is at command, where those that demand it can be placed. It does not always follow that a wild plant is found growing in the best possible place for it. Take, for example, the Scarlet Columbine, found on damp rocks along the Wissahickon (Philadelphia). I have seen better specimens of it in open places in gardens than ever I have seen wild, no doubt because the garden afforded better food than its native rocks did.

To those who have not tried it, it would be a great surprise to find how much better plants grow when the ground about them is well mulched. It makes the plants feel more nearly at home than anything else that could be done, save the giving of shade to some of them. Plants in the woods have shade above them and decaying leaves about them, and those in fields have grass or other plants about them, so that in both places the roots are cool. This is what mulching of the garden plants does, this and the preservation of moisture. Another thing rarely thought of is this. The wild plants in the woods are so covered with forest leaves that frost does not get to their roots. I am sure that all plants, hardy or not, are the better for this ; and I would mulch afresh in the fall, that the roots may have a winter covering. As herbaceous plants will repay good food given them, I would mulch with manure in the fall. Let it be long manure, the better to protect the plants ; the strawy portion can be raked off in the spring ; the remainder can be left undisturbed. It will be loose, and often it will be sufficient mulching for the summer.

Next to mulching, there is nothing like a constant stirring of the soil. Let me say here that I have found many workmen in gardens totally unacquainted with the principles of hoeing. The hoe is drawn over a surface already hard, cutting off the weeds close to the ground. Then the weeds are raked off, leaving the ground in really worse condition than before, for the weeds shaded the surface though they did rob the ground. Hoeing should be fully as much to loosen the soil as to destroy weeds. Every stroke of the hoe should loosen up an inch or more of soil, and this loose soil should not be raked down too fine, or the first

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heavy rain will beat it down very hard. One would hardly believe what a help constant cultivation of this kind is to herbaceous and all other plants. And when rains come, the water is all taken up where it falls. Good mulching preserves the looseness of the soil in the same way. I am sure that very many more of our lovely native flowers could be successfully grown than there are, if mulching or hoeing could be made a feature of cultivation.

Instead of saying more about these plants, I will diverge a little and speak of ferns. I believe that all of us that possess a garden, be it ever so small, have place for a few ferns. What they require above all else is shade. It may be the eastern or northern side of a dwelling or a wall or any other situation where the afternoon sun does not reach them, and it will do. Under trees is not suitable, as a rule. The roots of trees exhaust the soil of moisture, and the branches shed big streams on the fronds, both to the injury of the plants. My own collection of native sorts are planted on the eastern side of a neighbor's house, which forms a division line. The sun shines on them until noon but not later. They flourish in the best possible way. Among the twenty-five sorts collectible about our city, some half dozen of them are evergreen, and these should certainly be planted. The time to collect ferns is toward late summer. All the kinds can be seen then, and their fronds being fully matured, the height to which they attain is shown, and the proper place for them in the garden can be determined. Take a good ball of earth with them if possible, though, as it is easy to get all their roots, they are not difficult to transplant without this.

During the trip to England already referred to, it was my privilege to visit many large private grounds, and, though the climate of that country is thought particularly favorable to the cultivation of herbaceous plants, I cannot say that I saw any evidence of more interest in them there than is displayed here. But let any one who wishes to see them in perfection visit the Royal Gardens, Kew. The department for these plants is supposed to contain everything hardy, and to have every plant correctly named. And as far as possible to every plant has been given a position it prefers. There are swamps, bogs, dry rocks and damp rocks, shady nooks and open places, all filled with flourishing plants. With notebook in hand, after two visits, I did not nearly make record of all I would have wished to have done. In the woods and fields visited, I did not find nearly as many wild plants as similar situations here, afford. No doubt it is there as it is here near large cities, those who see pretty flowers are apt to dig or pull them up, and so they disappear. On reaching these shores again, after my travels abroad, I could but feel a pride in the beautiful scene presented on each side of the track as the cars sped on from New York to Philadelphia. It was the month of August and, while full of recollection of the never-to-be-forgotten kindnesses shown to me by the good friends I had parted with in England, it seemed to me the picture before me could not be presented on any other shore. Crossing the Delaware at Trenton and entering once more Pennsylvania, my feelings can be expressed by quoting these lines from Byron :

"Yet are thy skies as blue, thy crags as wild :
Sweet are thy groves and verdant are thy fields,"

—for look wherever I would, cultivated fields, the trees of the forests, and the wild flowers of the roadside seemed to me never to have looked so beautiful.

JOSEPH MEEHAN.

Germantown, Philadelphia.

DURATION OF HERBACEOUS PLANT BORDERS. —It is a common belief that a border of hardy plants, native or otherwise, once planted is a fixture and will keep on increasing in beauty.

To a certain extent this is true when compared with summer bedding and half-hardy plants in general ; but, if half the attention and expense were devoted to the herbaceous borders that is given to the former, the results would be far more satisfactory.

To obtain the best results from the hardy border, attention should be given as to how often the different kinds require transplanting. Such kinds as hollyhocks, foxgloves, Sweet Williams and Canterbury Bells, give the best results if treated as biennials, unless planted in places peculiarly adapted for them.

Then follows the section that arrive at their best the second and third year from the time of planting. These can readily be recognized by their mode of growth,—they spread and increase by an underground stem and are

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mostly fall-blooming, including all the perennial Sunflowers, Asters, Golden-rods, Heleniums, etc. These should be dug up and replanted about every third year, and, if possible, their location on the border changed, as each kind of plant exhausts the soil of food peculiar to itself.

Among the kind that may be left undisturbed for a longer period are Pæonies, Iris, *Dictamnus*, *Hemerocallis*, *Funkia*, etc. These have thick, fleshy rootstocks and will be satisfied with a top-dressing of manure dug under in the spring. E. HEMMING.

ARRANGEMENT OF COUNTRY FLOWER GARDENS.—One who loves flowers, and can gather interest from individuals, generally has serene enjoyment in their contemplation in whatsoever position they may be placed. But this interest will diminish if the same plants be frequently viewed in unfitting positions. How often do country gardens lack an arrangement of plants which will please the eye and gratify artistic taste in the whole scene such arrangement presents! House plants at the close of winter are taken out and stood in rows in a convenient place—some are planted out in certain locations simply because they are vacant places and the soil is easily dug up to receive them; annuals are sown along the side of the house, by the drying wall, because something is needed there; "slips" are put in any convenient spot; and so it is from beginning to end, the whole thought centering on the individual. What extreme pleasure is withheld in the absence of a flower *garden*, graceful borders of shrubbery, specimen trees arranged effectively, cool, shady walks and nooks. Country properties invariably offer great opportunities for all these things—opportunities which are denied comparatively to all but a few city residences.

There is very little encouragement for neatness where plants are placed around indiscriminately, and improvement along the lines suggested will double and treble the attractiveness of country homes.

A flower garden of the present day frequently is in combination with the family truck patch, an unobjectionable feature if the arrangement be good. Therefore, it may frequently mean but a slight increase of space allotted to the truck garden to make it a thing of beauty as well.

FRUITS AND VEGETABLES.

TRUFFLES.—Truffles belong to the fungus family and grow wholly beneath the surface of the ground. Dogs are trained to discover where they are, by scent. When they are located by the dog, the hunter digs them up. The London *Journal of Horticulture* says: "Truffle hunting, as a regular pursuit among the English peasantry, is not yet quite extinct—or was not a very few years ago. At Cheriton, close to the scene of the stern struggle between Roundhead and Cavalier, there recently lived an old man called Isaac Leach, who, says a correspondent of the *Daily Express*, practically subsisted by the Truffles he found and sold. His Truffle dog is still alive, I believe, and belongs to one of the villagers; it is white and curly-haired. Leach would sometimes find as much as a pound of Truffles, in the day, among the downs. Of old, Truffle hunting was quite a calling. 'Ye Truffle man' is mentioned by various old writers. Gilbert White, in his delightful 'Observations on Vegetables,' has this note: 'A Truffle hunter called on us (in August) bringing in his pocket several large Truffles found in the neighborhood. He says these roots are not to be found in deep woods, but in narrow hedgerows and the skirts of coppices. Some Truffles, he informed us, lie two feet within the earth, and some quite on the surface; the latter, he added, have little or no odor, and are not so easily discovered by the dogs as those that lie deeper. Half a crown a pound was the price which he asked for this commodity. Truffles never abound in wet winters.'"

HABIT OF THE PLUM WEVIL.—In the notice of Prof. Waugh's excellent treatise on the plum, an intimation appears that the authors are mistaken as to the method by which the Plum Wevil or curculio deposits its egg. It appears, however, that Prof. Waugh is right. The crescent mark is made by the insect with its snout, and it has then to turn, in some way that does not seem to have been described, and deposits the egg into the cavity it has made with the apex of its trunk. It would seem that nature has not been so obliging to these creatures as those to which she supplies ovipositors,—but, then, nature seems to delight in doing things in many ways.

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BURDOCK.—In past issues of MEEHANS' MONTHLY, reference has been made to the extensive use of our common burdock, *Lappa major*, as a vegetable, among Oriental nations. In "Garden and Forest," for 1897, is a very interesting account of its use by the Orientals, by a Japanese correspondent, Inazo Nitobe, which is well worthy of reproduction here :—

"Sowerby writes in his 'Useful Plants of Great Britain:' 'The stalks of the burdock, cut before the flowers open and stripped of their rind, form a delicate vegetable when boiled, similar in flavor to asparagus. In the raw state they may be eaten with oil and vinegar as salad. They were sometimes candied with sugar in the time of Bryant, as those of angelica are.'

"In Japan, burdock grows wild in several places, but it is also extensively cultivated as a vegetable. Every one knows and eats 'Gobo,' the usual appellation for this plant, although a more refined and almost obsolete name is 'Kitakisu;' sometimes it is called 'Uma (horse) fuki (Nardosmia).' It is familiar to the Ainu under the name of 'Seta (dog)-korokoni (Nardosmia).' Both the Ainu and the Japanese prefixes, 'seta' and 'uma,' when applied to plants, seem to have much the same sense as the English 'dog,' in dogwood, dogbane, etc., and the 'horse' in horse-radish, horse-chestnut, horse-mint, etc. The Ainu use it as food as well as medicine. They boil the tender shoots with beans, and the roots are put into soup. For medicinal uses, the young leaves are softened, by rolling them between the palms, and applied to skin eruptions. The Japanese esteem *Lappa* for similar purposes. It is used in many preparations for its medicinal properties, which, they believe—at least, the old-fashioned empirics believe—consist in counteracting the action of some kinds of poisons. Grated and made into pulp, the roots are applied as a poultice in eruptions of the skin. But, by far, the more important use is made in the kitchen. As regards this plant, we have out-stripped the pantophagous Chinese, for they have not raised the plant to the dignity of a market vegetable. 'When young,' says a Chinese book on botany, 'the tender leaves of the *Lappa* are cut and eaten as greens; the roots may be boiled or steamed and eaten, but people nowadays rarely use the plant.' Among the Japanese, however, it has been under cultivation for years, and possibly for centuries. It enters the kitchen of every household, not being ostracized from the menu of the most high-toned restaurant. Thousands of acres are devoted to its culture. Official statistics, for 1888, give the total production of *Lappa*, in the country, at about 72,000,000 pounds, valued at 422,134 yen. The roots average 350 grains in weight.

"The production of so large a quantity is not at all to be wondered at, when we recollect that *Lappa* ranks high in the scale of nutritive plants. In the amount of nitrogen it stands higher than potatoes, beets, carrots, or turnips; in fact, few roots or tubers approach it."

THE COLUMBIAN RASPBERRY IN THE STATE OF WASHINGTON.—The Columbian Raspberry is the best of all the varieties we have tried; it is hardier than the Gregg. It does not sucker; every one who has seen it in our garden speaks highly in praise of it.

I notice that some catalogues call it *red*—ours are purple. When cooked, they have a good flavor and make fine jam, of rich, purple-crimson color.

How are we to know that a variety of fruit or flowers comes true to name? From the report of some persons I am inclined to think their Columbian Berry is not the same variety we have.

Ours was procured from James Vick's Sons, and I presume there is no question but that it is true to name. SUSAN TUCKER.

Cheney, Wash.

POISON ON CABBAGES.—"A man would have to eat 100 cabbages at a sitting," says Dr. Henry M. Skinner, "to be poisoned"—referring to cabbages treated with Paris Green to destroy the cabbage-worm. Nothing is better for this purpose, and no one need fear that he will be poisoned as well as the worms. But this is not because Paris Green is not a deadly poison. It is arseniate of copper, a combination of arsenic and copper, but, in the diluted manner in which it is used, there is not enough left to be harmful to human beings. In the cabbage, especially, it is employed before the cabbage heads, and, the loose leaves being always pulled off in preparing for cooking, there is little chance of any at all being on the cabbage, when ready for the table.

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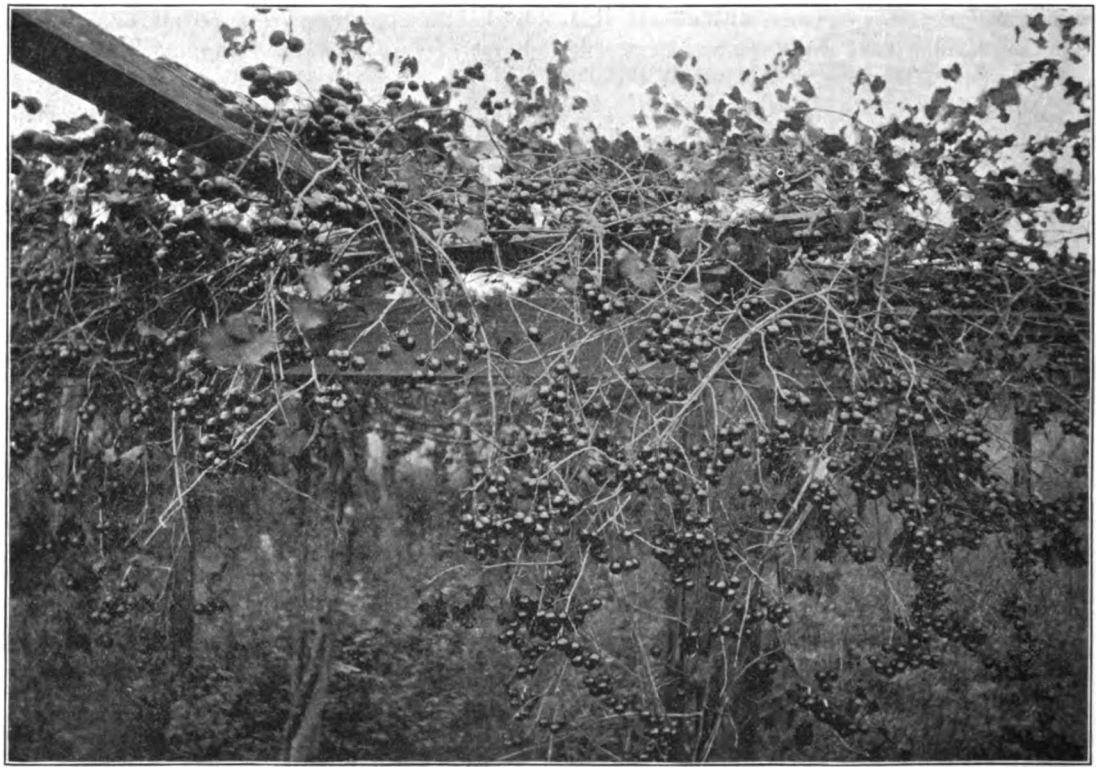
THE SCUPPERNONG GRAPE.—But few, other than those who have had considerable experience in the South, have any idea of the enormous productiveness of the Scuppernong Grape. There are few berries on a bunch, but this deficiency is made up by the great number produced.

The annexed illustration, made from a photograph kindly furnished by Mr. C. E. Pleas, of Chipley, Florida, gives an excellent idea of its productive condition. It does not thrive north of the Potomac.



BLACK SCUPPERNONG GRAPE.

CALIFORNIAN ASPARAGUS.—One may well pause at a loss to decide which most to admire, the generous climate of California or the splendid enterprise of its able band of fruit and vegetable growers. By the end of March and early in April, Californian asparagus was in quantity to be hawked about the streets of Philadelphia by the traveling dealers, and at a price within the reach of a moderate income. In quality, it is far superior to French canned asparagus, or that offered in the home-grown market. Blanched asparagus has seldom more than the tops eatable, the greater part being too stringy for mastication. The whole six inches of length is eatable. It is a favorite eastern saying that some things can be done as well as others,—but it does not apply so far to eastern asparagus growers.

PIE CHERRIES.—What are popularly known as pie cherries, or perhaps, to the trade, sour cherries, are among the most valuable of fruits to the suburban garden. The sweet cherry is usually devoured by the birds—the robin, among its many virtues, having especially this great sin to answer for. But not even the ruthless English Sparrow cares to take the pie cherry for dessert. When this cherry is grafted on the Mazzard, instead of the Mahaleb, it makes a beautiful small tree, both in flower and fruit. Mr. G. Harold Powell, of the Delaware College Agriculture Experiment Station, has recently prepared a monograph and history of all varieties known in America. It is an especially valuable work. He regards as the three best varieties for Eastern States, Early Richmond, Morello and Montmorency.

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BIOGRAPHY AND LITERATURE.

THE PEAR AND THE PEACH.

Ambition is the ripened pear,
And friendship is the vine,
Which even round a ruin will
Its clinging tendrils twine.

But love is like the luscious peach,—
A touch its bloom destroys ;
As beautiful its blushing cheek,
As sweet its tasted joys.

Forever in its inmost heart
A hidden poison lies,
And all its sweetness is forgot
If jealousy arise.

So then, beware,—go not too far,
If only sweets you'd find,
Just brush the bloom and taste the fruit,
But leave its heart behind.

For man too often at its core
Meets bitterness alone,
While many a woman breaks her teeth
Against its heart of stone.

MARY BAYARD CLARKE.

DR. CHARLES MOHR.—Dr. Charles Mohr, one of the noted botanists of America, and for many years a druggist at Mobile, Alabama, died on July 17th, at Asheville, North Carolina. For a number of years past, he had been in the service of the Scientific Department of the United States, and a monumental work on the "Flora of Alabama" appears among the Agricultural contributions, simultaneously with the announcement of his death.

DR. C. S. SARGENT.—Prof. C. S. Sargent has received the degree of Doctor of Laws from Harvard University.

THE PRINCIPLES OF VEGETABLE GARDENING.—By L. H. Bailey, New York. Published by the MacMillan Company. To his many useful contributions to the literature of gardening, Prof. Bailey contributes another, no less valuable, on vegetable gardening. Though intended for the unlearned, it is full of suggestions from which even the most experienced may profit.

YEW TREES IN ENGLAND.—It is said in an English daily paper, that "Yew trees are known to have been planted in early times to mark the site of a pagan temple. Our pagan forefathers built their church, and in close proximity to the church, they planted one or more Yew trees. At Selborne, in Hants—the village where Gilbert White, the famous naturalist, lived—there stands a Yew, judged by experts to be the oldest in the country. Once it stood at the entrance of a pagan shrine, and now that a Christian church stands on the spot, the aged tree still overhangs the south porch. Four feet from the ground its girth is twenty-four feet. Its age is computed at 1,200 years, at the least. This summer its foliage has been as green and fresh as ever. It is most interesting to learn that trees were generally planted on the south side of early Christian churches, with the object of affording shelter in rain or shade in sunshine to churchgoers, who, in those days of wide parishes, came from long distances, and often arrived before the time for service. Trees are also known to have been planted around churches on high elevations, as being likely to protect the fabric from storms. The Yew tree was the species decided upon, partly because of its sombre appearance, and partly because it was recognized as an emblem of mortality. The tree in Selborne churchyard has looked down on many thousands of funerals, for the enclosure at the south is one mass of mortality ; the earth is but a 'crust of men's bones.' Trees were considered so useful in churchyards in bygone times that an Order in Council was issued, in the time of Edward I., forbidding their removal. *Ne rector arbores in cemeterio prosternat*, says the Order. It is also interesting to learn that, at the present time, almost every ancient Yew in the land is being watched and guarded by jealous eyes and hands. Any attempt to disfigure or remove one of these living 'links with the past' would at once be met with a strong and wide-spread veto. Hard by the Selborne Yew is a square enclosure

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known as the 'Locus ludorum,' or 'place of play,' a playground for the village children which has existed from Saxon times. On this spot a tree was recently planted to celebrate the Queen's Jubilee, but the young sapling, as though it were ashamed of beginning the race of life with so old a kinsman close by, has taken fright and died."

The ancient Britons used the Yew for their bows, if not the arrows,—and it has been stated that this was the origin of the great respect they had for the tree.

GENERAL NOTES.

FILTRATION OF DRINKING WATER.—It is a curious reflection on the slow pace at which advanced knowledge proceeds among the mass of the people, to note public bodies spending vast sums of money on schemes that more intelligent quarters have tried in the balance and found wanting. Just now, Philadelphia has started on a huge filtration scheme that may cost twenty millions of dollars, just as others are beginning to find out that with all its attendant evils, nature-prepared water is, on the whole, the best thing. The London "Hospital" tells us that the Medical Inspector of the British army says, of filters: "Much of the knowledge that has been gained in recent years about filtration has tended to throw doubt upon the power of ordinary filters to produce a safe and drinkable water. Indeed, a sort of despair has seized upon scientific men upon this subject."

SANITARY SCIENCE.—With the modern philosopher, everything under the sun is to be taught in the public schools, and "Sanitary Science" is the latest idea of that kind. Just what the science is may well be a question. One of our Californian exchanges is having some fun at the expense of the so-called science. We are told that the seeds and skins of fruits are injurious, and strawberry seeds are to be carefully taken off before the succulent part is eaten. By the time we get the skins and seeds from huckleberries, grapes, currants, gooseberries, and so forth, there will be little left to eat. If we can only get this science into the birds, so that they will leave our cherries alone, it might do good service,—but then, without the cherry skin and the cherry stone, the fruit would not amount to much. The Graham, or brown bread eaters will receive a heavy blow from this "Science," and we shall all have to fall back on plain dough, if we would have healthful lives. People were coming to the belief that the wheat skins and other small skins and seeds, though in themselves indigestible, kept the food open for the ready operation of the digestive fluid, and rendered yeoman service. But what will "Sanitary Science" say next!

TOBACCO IN CALIFORNIA.—The remarkable enterprise of the Californians deserves the success that has made their State so famous. They first study all the elements necessary for any enterprise, and then, with full faith in the result, go ahead in courageous style. No one has ever thought that tobacco-culture would ever be among California ventures, yet recently, a company was formed at San Diego, with a capital of $50,000, to try the experiment on one hundred and eighty acres. But they already feel it is more than an experiment. They feel sure of success.

GRAMMAR IN HORTICULTURAL WRITING.—An educational journal uses a horticultural illustration to show the proper application of the word "which." "The birds which eat fruit," should be "birds *that* eat fruit." This is clear enough. It tries to make the matter clearer by filling out the full meaning of the sentence. "The birds, which you speak of that eat fruit, repay us by destroying insects, which are often injurious to plants." To our mind, the intelligent horticulturist would replace all the "whiches" here.

TULIP TREE SCALE.—The scale insect that loves to give its attention to the tulip tree is among the largest of these insect pests, and is of a bright cinnamon brown. It has been said that even the learned in large cities know so little of nature that they hardly know whether a tomato grows on a tree or an apple grows on strawberry vines. If there be people so ignorant, they might believe that cinnamon buns are furnished by the Tulip Tree, and that these scale insects are a young crop of buns. As in the case of all this class of insects, they are readily destroyed by kerosene emulsion.

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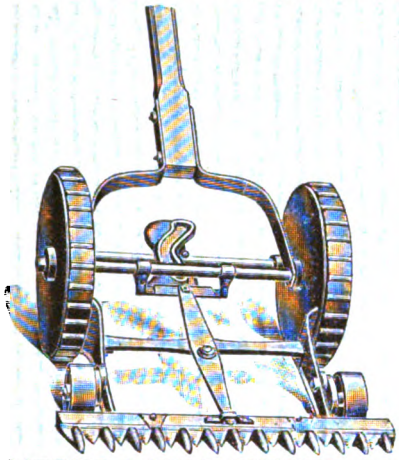

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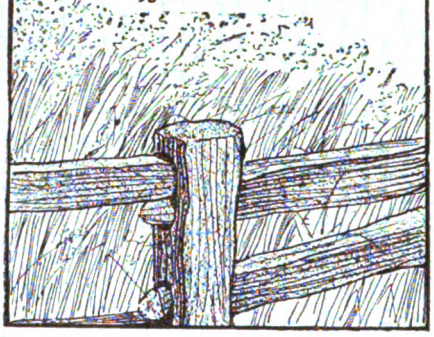

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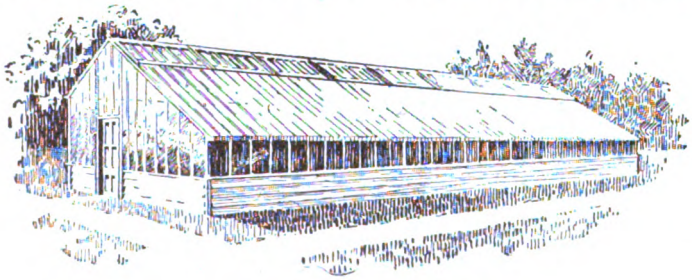

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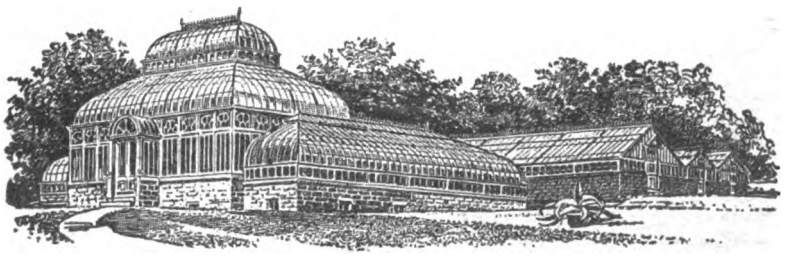

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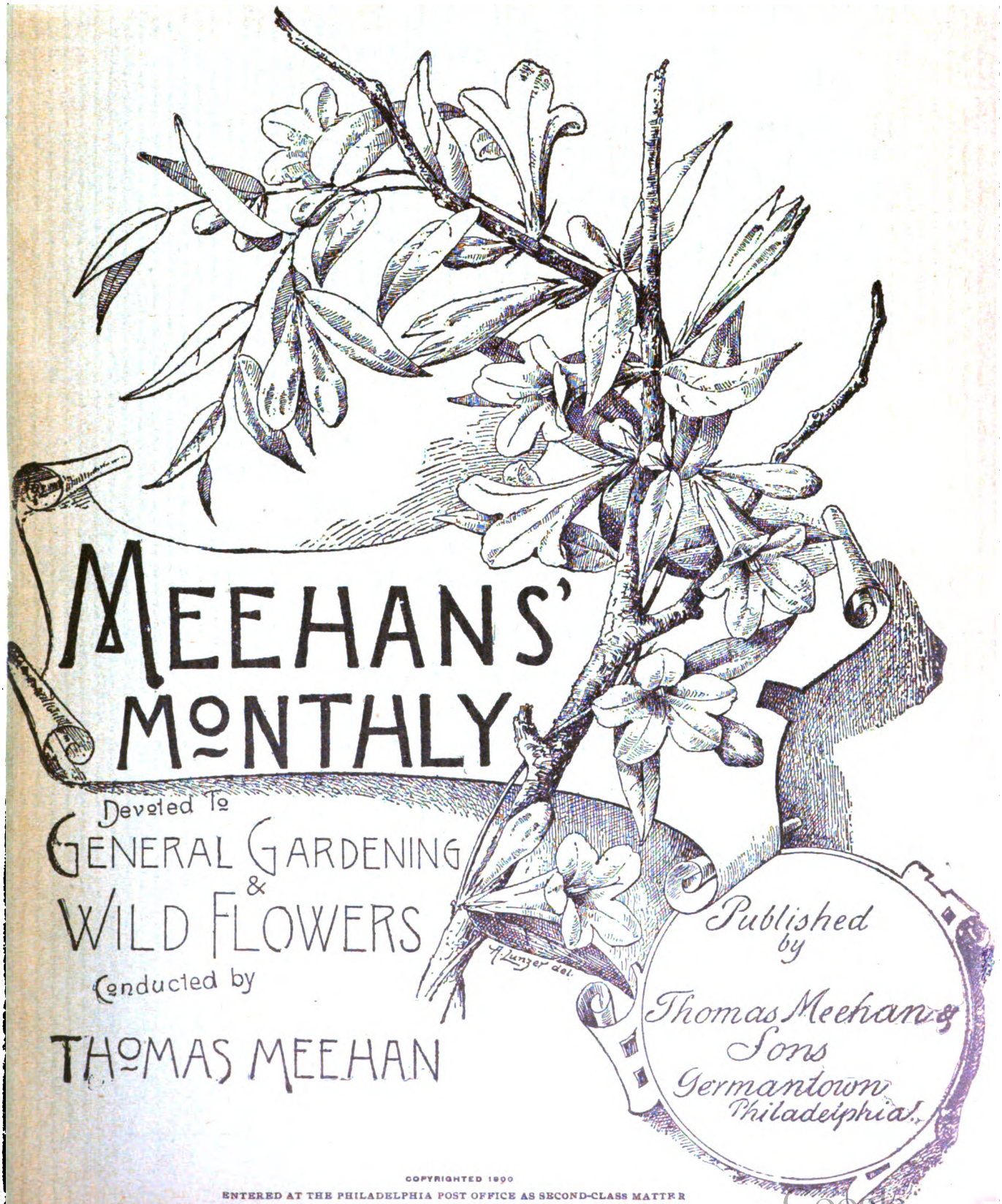

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HAMAMELIS VIRGINIANA

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HAMAMELIS VIRGINIANA.

WITCH-HAZEL.

NATURAL ORDER, HAMAMELIACEÆ.

HAMAMELIS VIRGINIANA, Linnæus.—Leaves obovate or oval, sinuate-dentate, sub-cordate at the base, stellately pubescent. Stem six to eight or twelve feet high, with straggling, flexuose or geniculate branches. Leaves four to six inches long; petioles about half an inch in length. Flowers greenish-yellow, clustered in threes on a common peduncle nearly half an inch long; petals narrow, linear, a little crisped, about three-quarters of an inch in length. Seeds black and shining. Darlington's *Flora Cestrica*, as *Hamamelis Virginica*. See, also, Gray's *Manual of the Botany of the Northern United States*; Chapman's *Flora of the Southern United States*, as *Hamamelis Virginica* erroneously, and Wood's *Class-book of Botany* and Britton and Brown's *Illustrated Flora of the Northern States and Canada*, correctly as *Hamamelis Virginiana*.

In the Witch-hazel, we have one of the most interesting of the wild flowers of the United States. In a flower garden, a solitary rose may often be found in full bloom when the frost comes, and much tender sentiment has been evoked on the idea of its blooming alone when all its lovely companions were faded and gone. But, though the same sympathetic feeling may not arise as regards a single flower of the Witch-hazel, it may be entertained of the species as a whole, the flowers appearing only when those of other plants have left us, and, indeed, often struggling along in growth after the Ice King has been proclaimed sovereign of Winter's throne. Practically, however, the flowers make but a short stay with us.

"Brief as the lightning in the collied night,
That in a spleen unfolds both heaven and earth,
And ere a man has time to say behold!
The jaws of darkness do devour it up."

Like many of the shorter lessons of life, it teaches us many things that the longer stories fail to tell. One, the most frequently dwelt on, is the curious fact of the flowers opening in one year and the seeds not maturing before the flowers of the succeeding year appear. But this fact is not unique in the floral world. The violet, in our northern States, often opens a few flowers in the autumn, the fruit only to mature late the following spring,—and the author has placed on record that the red, shining fruits of many of the species of *Mammillaria*, and probably many other members of the Cactus family, ripen fruit, at flowering time, from the flowers of the previous year. Aside from this, is the fact that the capsule is full-grown, and the seeds mature long before the capsule expands in the fall of the year. Then, the expansion of the capsule itself is of interest, by reason of its sudden opening and the projection of the seed to a great distance. This point has attracted observers from the earliest times. Elliott, in his "Sketch of the Botany of South Carolina," issued in the earlier part of the past century, observes that the seeds are "discharged with a spring to some distance." In reference to the distance the seeds can be thrown, Miss M. B. French notes, in the 7th volume of the "Botanical Gazette" (1882), that a branch, lying on the table, sent the nutlets 12 feet to the ceiling! The process by which the seeds are projected was first explained, by the author of this chapter, in a verbal address, before the Academy of Natural Sciences of Philadelphia, in 1872. It was shown to come from a contraction of the horny endocarp, or inner coat of the capsule. In preparing an abstract for publication, by what is generally known as a "slip of the pen," "albumen" was written for "endocarp." What would have been regarded as an obvious error in the eyes of the general reader, was taken as a mark of gross ignorance by Professor Asa Gray, and the reference in the bibliography of *Hamamelis* to "American Journal of Science, Series 3, V., 144," is merely a caustic criticism of the author's egregious error! The most careful writers make missteps at times. In the case of this very plant, as noted in the description,

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this great and generally closely accurate botanist quotes Linnæus for the specific name *Virginica* instead of *Virginiana* as Linnæus wrote it.

Another interesting point, in connection with the plant, is the term Witch-hazel and the origin of the name. Among the best of the popular accounts of this, and other matters connected with our plant, that by Dr. W. P. C. Barton, in his "Flora of America," may be quoted entire: "The opened nut remains, for the most part, on the branches, long after the succeeding period of florescence, becoming, after the seeds have dropped, a bistre-brown color. Hence, the flowers and fruit are found on the shrub at the same time, which has given origin to the generic appellation *Hamamelis*, being an ancient Greek name from *hama*, accompanying, and *melis*, an apple tree, because the plant which bore it blossoms at the same time. This is supposed, by modern botanists, to have been the *Mespilus Amelanchier* (Medlar), or something near it. Linnæus, finding the name unoccupied, fixed upon it for a new American shrub, which Mitchell had called, in his letter, *Trilopus*. The reason of its appellation, in the present instance, seems to be that, as the fruit is a whole year in ripening, it accompanies the flowers in autumn, which are destined to produce the next year's fruit." He then remarks on its supposed use in water-divination and says, "A forked branch is used and twirled between the fingers and thumbs of both hands, during the muttering of some mystical words, when, in the spot towards which the point of the bifurcation drops or points, water is said by them to exist. Hence the name Witch-hazel."

In regard to the points referred to in this abstract, Prof. C. S. Sargent has shown, in his monumental work, "Silva of North America," wherein references seem to have been all re-examined, that the Linnæan name, *Hamamelis*, dates for a few years anterior to *Trilopus*,—and, as regards the use of the plant in divination, the author has met with nothing, in the earlier American general history, to show that this plant was specially used in these cases. The Wych-hazel of the Old World is an elm,—used in the olden time for making "wyches," or chests. For water-finding, the branches of any kind of fruit tree were employed, those of the plum, and especially the blackthorn, being used for hedging and ready to hand, coming into the more frequent use. The leaves and general appearance of the branches are suggestive of the Wych-hazel of Scotland, and, corrupted to Witch-hazel, is possibly the origin of our name. In modern times, there have been accounts, in serials, concerning it. One, by Mr. Alfred Burnson, in the "Patent Office Report" of the United States Government, for 1851, indicates a firm belief in the efficacy of the twig method of water-search.

An interesting feature of the plant frequently met with is that, in many instances, the seed vessel, instead of the usual two-horned character, is transformed into a bladdery vessel with numerous horns over its surface. Cut transversely, in early autumn, it will be found protecting numerous full-grown, winged and wingless aphides. The female deposits an egg in the spring, and with it a fluid that results in the gall, as described. Closely examined in connection with other characters in the normal flowers, these horned processes are seen to have primordially been scales or bracts,—and the morphologist learns that, under some of the conditions of nature, this fruit may have been a catkin, thus confirming the views, of some botanists, that the plant is closely related to the natural order *Amentaceæ*, of which the true Hazel-nut is a member. The resemblance of the plant to the hazel struck the earlier botanists. David Banister, the first to make the plant known in the Old World, sent it under the name of "*Pistachia Virginiana nigra Coryli foliis*"—*Corylus* being the hazel's botanical name.

Our plant is again interesting from the fact that it is another illustration of the co-relation between the plants of Eastern North America and those of Japan. Though admittedly closely related, *Hamamelis Japonica* is recorded as scarcely worthy of distinction. Since our own localities have been closely scrutinized, as much or more variation is found among the plants of our own country as in this race in Japan, and its specific identity is now conceded.

EXPLANATION OF THE PLATE.—1. Branch, from Eastern Pennsylvania, taken in October, showing the opening of the fruit. 2. Branches of the same taken just before frost. 3. Back view of a flower, slightly magnified, showing the symmetrical arrangement of the scales. 4. Front view of the same flower. 5. Fertile and sterile stamens; petal and sepal enlarged.

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WILD FLOWERS AND NATURE.

APRIL AND OCTOBER.

And if one sits on some pensive bole
With curtained eyes, when every wind is still,
The falling leaves in grave October's bowers
Sound just like April's gaily pattering showers.

NECTAR OF FLOWERS ACCORDING TO THE SOIL.—The production of honey from flowers varies according to the longitude and latitude of the place where the plants grow. But these two influences are not the only causes acting upon them. M. Gaston Bonnier, in his report, states the tendency of the kinds of soil for melliferous plants, advising the study of them in different compositions, and measuring the quantity of honey produced by them. He thus estimates that different soils have a very different effect in the production of honey. White Mustard (*Sinapis alba*) gives more nectar on clay ground. Sarrasin (*Polygonum Fagopyrum*), on the contrary, gives more from silicious clay than from lime ground. Phacelia (*Phacelia tanacetifolia*) prefers a clay, or clay and sand soil. Pastel (*Isatis tinctoria*) yields more from lime than does Luzerne (*Medicago sativa*). Sainfoin (*Onobrychis sativa*) gives very little results from divers soils; it gives, however, least from lime soil. These variations explain, in part, the divergences in opinion of apiculturists on the honey value of such and such a species. Luzerne, Phacelia, and even the Bruyeres (Heaths?), for example, may be very sweet or not, according to the nature of the ground in which they grow. For those who wish to raise analogical research, there are given the three following ways by M. G. Bonnier:—The first method, for comparing the nectar value or richness of the same species placed under different conditions, is to cover the plants with pieces of muslin so that no insects can get in, and by the means of a little pipe measure the quantity of honey in the flowers of the same age. Second, by covering the plants in the same way, and taking a certain number of flowers of the same age, leaving them for a while in a quantity of water, as determined, and measuring the amount of glucose obtained after the immersion. The third way is to leave the plants uncovered, count the number of bees visiting the flowers, but not counting the flowers having inflorescence, yet not in the same state of development.—From *La Semaine Horticole.*

[We translate the above, believing it will interest bee-lovers, bee-keepers, as well as those who love to study the various phases of plant-life,—though believing that Mons. Gaston Bonnier, usually regarded a botanist of a good judicial mind, has gone wrong in this instance. It is well known that the odors of flowers are in the main derived from the nectar secretions,—and the odors of flowers vary with the different periods of the day. Before deciding on the chemical agencies involved, M. Bonnier should have ascertained at what period of the day the observations were taken,—and what period of the day afforded the richest harvest.]

VARIETIES IN MAPLES.—Miss Putnam, of Harmonsburg, Pa., sends a specimen of the common Red Maple, *Acer rubrum*, in which the seeds are grouped in dense clusters, like bunches of grapes. Among plants there is as much variety in the individual of a species as among the individuals among the human kind,—and the noting of these individual peculiarities is becoming one of the most interesting of studies with lovers of plants.

FUNGUS GROWTH AROUND BRANCHES.—In recent numbers of the MONTHLY, I have seen cuts of a fungus growing on oak trees, and mention of the injury such plants cause to trees. I find such fungi growing on the stump of an oak at Mr. Wm. B. Reed's, Oak Grove, Chambersburg, Pa. Last October, I was surprised to see that one fungus had encountered a small geranium,—also a stick and, even, blades of grass. In each case, it had not pushed them aside, but had grown up to them and then surrounded them, so that they ap-

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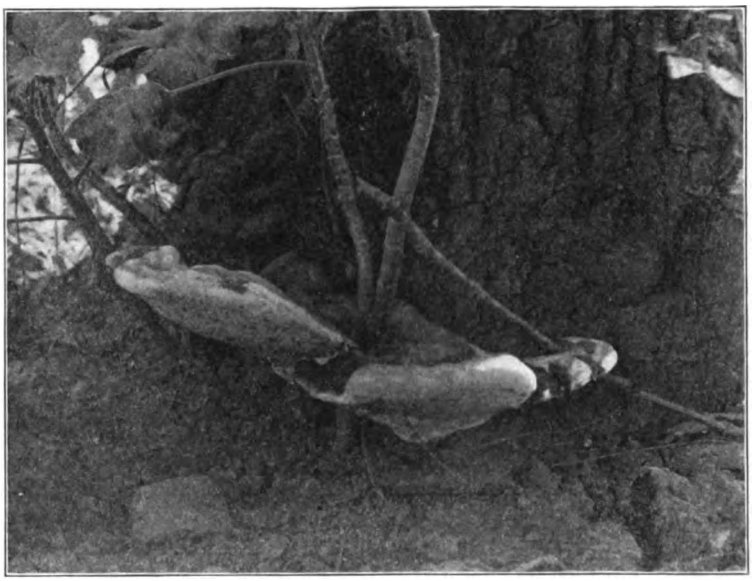
peared to be growing through the fungus. I made a photograph of one, October 21, 1890, and enclose you a print, thinking it might amuse you. I have found potatoes perforated by underground stems of *Triticum repens;* and, since I have seen the fungus I have spoken about, I wonder whether the stem grew through the potato or whether the potato behaved like the fungus and just grew past and around the stem.

Chambersburg, Pa. JOHN LAURENCE.

[It is said of one of the English kings—George III., we believe—that, when his intellect began to fail, he frequently expressed surprise as to how the apple got inside the crust of the apple dumpling; and, also, it is reported that the young philosopher could not understand how the wind was stored in the bellows. Many of the works of nature, simple when understood, seem mysteries in their early stages. Growth-energy is extremely accommodating when not interfered with. It will even deposit wood around a label or piece of wire attached to a tree, just as this fungus has done,—but it displays a tremendous force when its advance is opposed. If a stolon of a Couch-grass strike the smooth skin of a potato, it will run around the tuber; but, if the stolon's point be caught in one of the potato's eyes, or in some other indented spot, there is no such thing as turn about in its nature, but it goes straight through with as much ease as a pin or needle would pierce resisting flesh.]



FUNGUS GROWTH AROUND BRANCHES.

FLOWERS IN FRIENDSHIP'S BOND.—A correspondent sends a personal letter, from Mrs. Susan Tucker, of Cheney, State of Washington, so full of happy sentiments as to deserve publication; feeling sure that Mrs. T. will not object to its appearance here:—

"I came to Washington when this part of the State was a wilderness; my nearest neighbor was several miles away. I had only birds and beasts for my companions, and was often alone—quite alone—for days at a time. It was then that I learned to love the dear wild flowers, and, when I took up the study of botany, the information gained by observation, in those lonely days, was valuable to me. What you said about your friend's house and furniture, in a recent issue of MEEHANS' MONTHLY, reminded me of the make-shift for furniture which we had in our cabin home. Indeed, we have more home-made furniture now than of other kind. My two nearest neighbors are Germans. The five German families in this vicinity are from different parts of Germany. The family I am best acquainted with is from a place the name of which slips from my mind when I try to write it; but it is somewhere in Alsace, near Strasbourg. That is, the man is from there; his wife is an Austrian. I notice that these German neighbors of mine are all fond of flowers, and the little ones love me because I love flowers, too. It forms a bond of union,—a tie of friendship where otherwise we might be strangers.

"Once, I called on a German neighbor just from the Fatherland. I knew less than a dozen words of her language, and she knew scarcely more of mine; but she had just come in from a walk on the prairie and held a handful of our pretty wild flowers. Afterward, I

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was surprised to think how much we could say with a few words and a handful of flowers.

"She had known some of these flowers, or other species of them, in her far-away home, and it seemed like meeting friends to find them in this strange place."

THE WITCH-HAZEL IN THERAPEUTICS.—In medical botany, Witch-hazel has a wide renown. Strange to say, for all the extended use of extracts and preparations in general, there are eminent medical men who regard it as of no real efficacy. Its use in medicine was introduced through its extensive employment by the Indians. They used the bark in decoction for tumors, inflammatory swellings, and hemorrhages. This would indicate the presence of considerable tannin in the bark, as this is the main acting principle in remedies for these troubles. The Indians of the South ate the seeds, and made pretty ornaments from them. In the same natural order, there is apparently nothing of medicinal value unless it be the *Liquidambar*, or Sweet Gum, a species of which is so much admired in ornamental gardening. This is said to exude a balsamic resin.

IXIA CHINENSIS, L., PARDANTHUS CHINENSIS, —BLACKBERRY LILY.—Here is a stranger from the flowery kingdom as much at home in our wild woods as if it had never traveled a mile from its "own countrie." Seeing it out of bloom—a large clump of it—I remarked pleasantly to myself (I was alone at the time), "There is an Iris, which I will take along and plant in my wild-flower garden." That was last summer. I am collecting the wild plants of Iris so that when they bloom I can find their names. Passing by my wild-flower garden, a few days ago, I was surprised to see buds, and a long, leafy stem; and yesterday the plant was in bloom. Quite a pleasant little freckled face was turned up to me, and I stood a while admiring its strangeness. I saw directly that it was not an Iris. Consulting Dr. Gray's Manual, I found it was the Blackberry Lily, a plant of which I had often heard, but was never fortunate to see. Dr. Gray says that it has sparingly escaped from gardens in the East. It amazes me that I should have had the luck to find it growing on the southern slope of a high hill, with woods around it and rocks above it, evidently having escaped from a near-by garden, as there is an old homestead some hundred yards above and crowning the hill. It belongs to the Iris family and can be easily mistaken for it when out of bloom. Anyhow, it is an appreciated plant for my garden, as it blooms for a long time, each blossom lasting a day, and then, curling up its sepals and petals, it goes to sleep.

Festus, Jeff. Co., Mo. F. K. STEELE.

[The Linnæan name of *Ixia Chinensis* has long been dropped, and it has become generally known as *Pardanthus Chinensis*. But the usually conservative *Index Kewensis* has carried it back to an older name, and gives it as *Belamcanda punctata*. The name *Pardanthus* has been so universally in use in horticultural publications that it cannot be changed without confusion. However, it is so well known as Blackberry Lily, among flower lovers, that the strictly correct botanical name is not of serious importance to them.

Though it is rather common in gardens, we agree with our correspondent that it is a delightful plant to grow.]

THE "WANDERING JEW" OF THE VEGETABLE WORLD.—The years 1856 and 1857 were marked by a terrible plague which attacked the potato, and reduced our laboring classes to misery. About this time, some one ingeniously discovered a species of vegetable, the roots of which could be used in the place of the potato. It was then that tests were made of the Topinambour. A journal of that time called attention to another plant considered as a successor to the potato, a most singular plant, *Lathyrus tuberosus*, L., with a black root, called, by some, the *Souris de terre*, (Ground mouse), because of its shape, and *Châtaigne de terre*, (Ground chestnut), on account of its taste.

This plant inhabits eastern Asia, the north of Africa and Europe, and France; it is also met with in Lorraine and Bourgogne; in the latter countries, at that period, and perhaps to-day as well, they are the delight of children, who follow, in the wake of the plow, to gather it. The village market at Laingres was regularly and abundantly supplied with it.

Lathyrus tuberosus has never been cultivated; it is supposed to have acquired dimensions considerably larger than the potato.

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Cultivation of this root was hindered through popular prejudice, amongst the gentry, that it traveled under the soil, and would leave the spot where it was found and pass into the neighbor's field. The fact is, it propagates itself in chaplets or beads, and these tubercles are spaced the length of a straight running root, of which the two extremities are rarely found; in order to arrest anterior tubercles, propagation is made in advance, that is why it is said of this plant that, by continuing its march under the soil, it would finish by making the tour of the globe in a given time. It is an itinerant and cosmopolitan plant; it knows no frontier nor country, and leads a nomadic existence; it is, in fact, the "Wandering Jew of the vegetable kingdom."

—*La Semaine Horticole.*

THE EDELWEISS.

THE EDELWEISS.—The Edelweiss, pronounced "edelvice," is one of the most famous of the plants of continental Europe. In the high, barren rocks, crowning alpine heights, it is often the only plant to be found under such unpromising conditions; and, though the mountain climber may not be a botanist, there is the same hunt for it, as among young people here, for a four-leaved clover. So great has been the impulse to tear it out to show that the mountain has been climbed, that, in some districts, it has been almost wholly carried away. It is not at home in warm countries. Though frequently raised from spring-sown seeds in the MEEHAN NURSERIES, they succumb to the midsummer sun. Its botanical name is *Leontopodium alpinum*, or Alpine Lion's-foot. We are indebted to the *Gardening Illustrated* for the pretty picture hereunto annexed.

LONGEVITY OF TREES.—It is a noteworthy fact that almost all examples of very old trees are either pollards or resemble pollards in their stem and growth. We know of no instance of a long, clean-boled tree reaching an age anything like that of these patriarchs of the tree kingdom, although, perhaps, the very fact of their high commercial value may reduce their chance of escaping the axe when economy or expediency are called upon to decide their fate. Other reasons may be found, however, which account for the comparatively short lives of tall timber trees. In the first place, they are much more exposed to the full force of the wind than trees of short stature, and any weakening of the root system results in their overthrow after a few years. Another reason may be found in the tendency tall trees exhibit of becoming stag-headed as they advance in years. Tall oaks are especially subject to this weakness, usually attributed to a deleterious subsoil, but more probably connected with a reduced supply of sap to the crowns as the heartwood of the tree approaches the bark. For the same reason, the root system gradually becomes weaker as the supply of elaborated sap from the crown becomes lower, for it is obvious that a tall, clean stem appropriates a much larger share of this material than a short or well-branched bole, with a smaller superficial area. Tall trees, again, have usually been grown in close order, or under conditions which are less favorable to the growth and development of the individual, than to the production of commercial timber; and trees, like animals, suffer in after life for the privations or misfortunes of their youth.

Probably many other causes operate in this matter of longevity, but the above are, we think, the chief ones in accounting for the comparatively greater age of short-stemmed trees compared with their taller brethren.—A. C. FORBES, in London *Gardeners' Chronicle.*

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GENERAL GARDENING.

THE TRACK OF THE WARRIOR.

Where they pass they leave behind
Whole lands made waste,—where grew the nourishing grain
Nought to be seen but desolation,—where
The ploughman traced the fertile furrow, nought
But weeds and brambles,—where the hamlet stood,
A silent and yet eloquent heap of stones.

HOWARD WORCESTER GILBERT.

MOTH TRAPS.—Common observation teaches that many night-flying insects dash into flame and are killed. It is not unreasonable to infer from this that night-flying insects may be caught by a lamp so constructed that the flame can be protected from wind, while easy of access to the insect enemy. A paper before us opposes the traps and prefers spraying with insecticides, giving as the chief reason that, in moth traps, insects that are predaceous on others are killed as well as those we oppose. Friend and foe are served alike. But this must be as true of spraying. The Ichneumon fly may destroy half the brood of codling moths, but if there be enough left to serve us with nothing but wormy apples, we are better without them if spraying will do it all. A list of insects during some experiments shows that few diurnal insects were caught, and this one might suppose would be the case. Only those attracted by flame are likely to be trapped.

The discussion now going on is one to be settled mainly by experiment. Aside from experiment, there seems no reason why some injurious night-flying insects may not be caught by properly constructed traps. But the continuous attention required, as against one or two good sprayings, would seem to weigh heavily in favor of the latter as a general plan for the destruction of injurious insects.

POTATO IVORY.—Not many years since the threatened ivory famine produced that remarkable imitation known as celluloid, which has been successfully employed for every possible use, from billiard balls to piano keys. To-day the imitation has been itself imitated, and that, too, by a curious preparation of potato pulp! The inventor is a Dutchman named Knipers. He treats the waste pulp, itself a residue from the manufacture of the artificial potato flour, with a solution of acid and glycerine. The resulting compound takes the form of a species of stickfast, which is dried and ground to powder. This powder is moulded into blocks with the aid of water, very much as one uses plaster of Paris. There is, however, this important difference. The new compound can be cut, and turned, and bored, and used for every purpose, from buttons upwards, in which it was formerly customary to use bone and ivory.—*London Journal of Horticulture.*

PAINTING TREE WOUNDS.—Mr. Lyman's notes on the painting of tree wounds, and your remarks thereon, in the August number of the MONTHLY, are very interesting. It is a subject of much importance to every one, and one but little understood, evidently, for, wherever there is a group of a half dozen trees, one going to decay can usually be found, its decay traceable to the loss of a limb.

Does not the possessing or not of a sound or an unsound trunk depend altogether on the admittance or not of outside air to it? As Mr. Lyman says, there is moisture all the time in a living tree. This moisture is present for a hundred years in many old trees, but no decay starts unless air penetrates to the heart through some cut-off or broken limb.

Painting is to keep out both air and moisture, and the sooner paint is applied to a wound the better.

Though there be natural moisture in the tree, as Mr. Lyman suggests, it will never start rot of the trunk, or dead wood of the centre, so long as this centre is surrounded by living wood, excluding air from it. J. M.

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THE BEGGAR WEED.—"I suppose salt will kill weeds, but will it not kill desirable plants as well? Did not Ulysses go to sowing his fields with salt to prove that he was mad, so as to escape going to the seige of Troy—though he did not accomplish his purpose and was the greatest of the Greek commanders?"

E. E. ORCUTT.

[It is pleasant reading about killing weeds by all sorts of contrivances except hard work. But it is the sweat of the brow that finally succeeds. Running the cultivator in a field, or a hand hoe in the garden, some two, three or at most four times a year over the ground, so as to prevent the weeds from forming perfect leaves, is the only royal road to perfect success.]

BEST TIME TO PRUNE.—Yes, yes, gentlemen, "*The tree would dry though the wound should be solidly sealed*," but the knot, supplied by its own direct veins or pores, would not be dried but would have its moisture tightly stopped within it. Let whatever exuding power it possesses operate with the sun and air till the knot is as dry as may be, and then seal it water-tight. I think you will not dissent from this view, upon careful reflection. Am glad that you hold to the fact that the leaves use up the moisture. Some years ago, I corrected Prof. Sargent's "Garden and Forest" on this point, when it urged the importance of having many leaves on trees when transplanted.

Exeter, N. H. J. D. LYMAN.

SPRAYING IN NEW YORK.—In regard to the corrections made by F. K. Steele, I would say that there is a law against spraying fruit trees in blossoming time, in our State (New York). The rule is to spray once just before and again as soon as petals fall, and later, if necessary. But the first sprayings are to destroy the eggs, etc., of Codling Moths. Many, through carelessness, ignorance, or the desire to get rid of those "little pests," the bees, spray when trees are in full bloom. I have been told so by fruit growers themselves, and have read the discussions, *pro* and *con*, in our horticultural and gardening papers. "'Tis true, the pity is, 'tis true."

We know trees grow big in Missouri, but I quote from Gray, "*Cornus florida*. Tree, from 12 to 30 feet high;" those we saw were from 35 to 40. Again, from Gray, "*Rhus typhina* (Staghorn Sumach), Shrub or tree, 10 to 30 feet high." In our Genessee valley, they are often seen quite large trees, from six to eight inches in diameter.

Rochester, N. Y. S. B. BOWERMAN.

SCARLET-BERRIED SAMBUCUS.—Apropos of the remarks in the September MEEHANS' MONTHLY, a correspondent writes: "Your mention of the adaptability of *Sambucus Canadensis* to cultivate for its lovely flowers, like old lace, suggests to me the introduction of *S. pubens* for its superb scarlet berries. These, in the foot-hills of White Mountains and Berkshire, are a striking feature, vying with Mountain Ash in the landscape."

PRESERVATION OF THE CALIFORNIA MAMMOTH TREES.—The public prints are full of expressions of regret at the prospective disappearance of the wonderful mammoth trees, *Sequoia gigantea*. One by one they are being cut for their lumber, are blown over by storms, or come to an end by other accidents in various ways. Nothing can prevent these losses, and even with the best protection they could not be expected to last forever. In a few generations they may reasonably be expected to disappear.

The wise course would be for State, Governmental, or even public institutions of any permanent character, with large tracts of land, to plant new groves. Even the present generation would be interested in their growth, though they would not live to see their grand proportions.

A careful study of the conditions, by the writer of this paragraph, indicated that the locations where the trees are now growing were originally more or less swampy, and that the denudations of hundreds of years in the past has simply left them high and dry. A specimen, planted in a swamp, near Clark's ranch, a few years before, had made an amazing growth; and a plant, brought by the writer, from California, set in a swamp on his grounds, has shown itself perfectly at home. But swamp planting requires intelligence. Swamp trees will not grow planted in swamps. They must be permitted to grow into the swamp of their own powers. A cart-load or ridge of earth should be laid along the morass, and the trees

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planted on the elevated soil. In this part of the world, a fungus comes with the seeds, known as *Cercospora Sequoiæ*, and is very destructive, the young plants scarcely surviving one or two years; and even larger plants, brought from California, have a hard struggle for life. But it is found that a spraying with copper solutions is effective in checking the fungus growth, and in two or three years utterly destroys it.

WEEPING BEECH.—The so-called weeping trees are a puzzle to the student of nature. Trees usually desire to ascend,—and yet there is, among all species, an occasional individual that prefers to have its branches point to the ground. The learned call them geotropic, but the great name affords no explanation of the cause of this peculiar taste. All that has been learned is that the weeping tree is, on the average, a weaker grower than the normal

A LARGE WEEPING BEECH AT MR. C. B. DUNN'S, CHESTNUT HILL, PHILADELPHIA.

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form. A low vital power, unable to cope with gravitation, would seem to be the exciting cause. The weeping form of the English Beech is, however, a rather stronger grower than is usual with its class, and, having generally one straight, strong trunk, the tree can be trained into an arbor form. On the whole, there are few more desirable weeping trees than the beech.

WHAT IS THE SHAMROCK?—During recent years, literature has been abundant in the attempt to prove that the clover could not have been the ancient Shamrock of the Irish, but that it must have been the *Oxalis Acetosella*. The main argument has been that the clover was an introduction from the continent of Europe, and could not have been in Ireland at that time. A correspondent of the London *Gardeners' Chronicle*, W. G. S., goes over the whole literature of the subject. He shows that it was not until 1830, when J. E. Bicheno, a former secretary of the Linnæan Society, started a doubt, on the subject, in a paper read before that Society. W. G. S. quotes from publications, with their dates, going back hundreds of years, showing clearly that the Shamrock was clover, and nothing else but clover. Indeed, the correspondent shows that, in very early Christian times, long before St. Patrick's birth, the clover leaf was used as an emblem of the Trinity.

GINSENG.—I notice inquiry about the raising of Ginseng. It seems to be the idea that it must be raised from seed. I think it can be raised quicker and easier from root cuttings. I am convinced that, to get it from seed, they must be fresh. In root cuttings, they can be cut into quite small pieces, and nearly every piece will form a plant. Set them in leaf mould, in a shady, well-drained place. I had the Ginseng fever once.

Southwick, Mass. EDW. GILLETT.

SCALE INSECTS.—Those who have not much acquaintance with the practical intelligence required by a good cultivator, are very much alarmed at the progress in distribution of the scale insects, or other injurious insects, by the sale of nursery plants. Every good nurseryman or tree grower, who is worthy of the title of "good," perfectly understands how easy it is to destroy these insect pests, and no good nurseryman, who values his reputation, would for one moment think of distributing nursery stock with insects of this class upon it. The theoretical leaders are making great outcry against the spread of these noxious insects, and in many States they are urging legislature to have nursery stock inspected before it is sent out. That there are men who are indifferent about having clean nursery stock, is certain; but these are not among those who have been called good, intelligent nurserymen. The proper course would be to impose a fine on those who were guilty of such indifference. To this, there would be no objection; but it is the height of absurdity to employ, out of taxation, men to examine the stock of nurserymen, who sometimes know more about such matters than those who are sent to examine it.

FORESTRY IN AMERICA.—While our daily papers, early in May, were burdened with editorials showing how cities, in many parts of Europe, raised forests and paid the whole municipal expenses out of timber sales, a single forest fire in New Jersey was raging until a tract of 60,000 acres of valuable timber was burned over. The fire started among the dead wood and rubbish gathered in the underbrush, which our forestry leaders tell us is so essential in American woods in order to retain the water and fill the springs! European forestry seems to understand how to get plenty of spring water without forest underbrush, and the risk of forest fires.

THE BROOM-RAPE.—The Broom-rape derives its name from its rapacious character as a parasite on the roots of the Broom. It belongs to the genus *Orobanche*,—and the *Orobanche minor* is the one that seems to have found a home in this country. It has frequently been recorded, of late years, as appearing in florists' greenhouses, where it seems to have taken a special liking to the Zonale Geranium. In every case, where the plant has been brought to the writer's attention, the Geranium was the host plant. A fine specimen, nearly two feet in length, though with the usual slender stem, of *Orobanche minor*, was recently brought to him by Mr. Vanetta, of Philadelphia. The Geranium, to which it had attached, was itself grown as a window plant.

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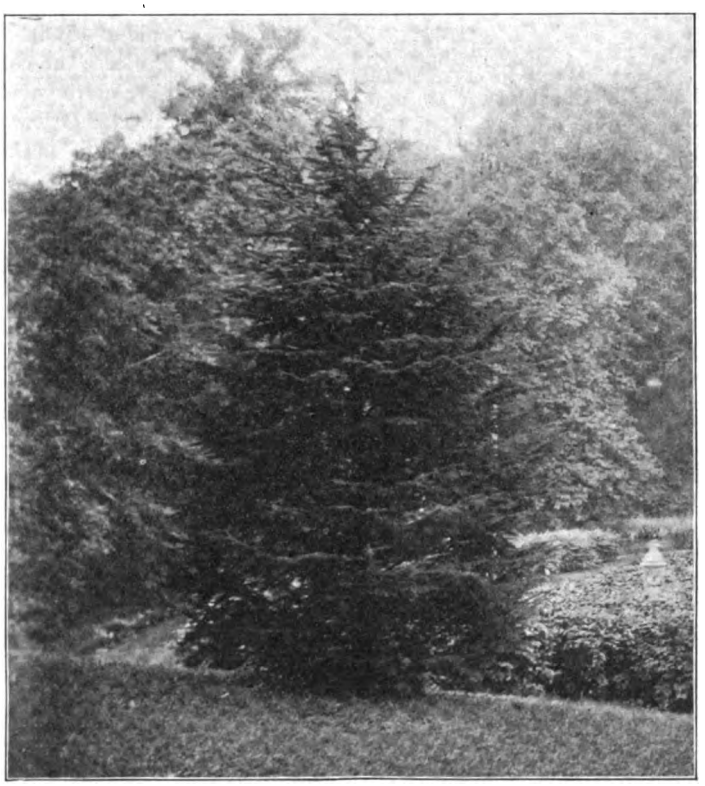
NEW OR RARE PLANTS.

THE CEDAR OF LEBANON.—Few trees are more famous, and deservedly so, than the Cedar of Lebanon. It has a place in sacred and profane history. It carries us, indeed, into the prehistoric age, for figures of the cones are found, in Babylonian tiles, as representing the tree of life, with nothing to explain them but the story they tell of themselves. No dead trees were found in the olden time, and thus it became emblematical of the tree of life. The Deodar Cedar, of India, a mere variety of the Cedar of Lebanon, is still venerated by the natives, and receives its name of Deodar from the same legend.

It suffers, in severe wind storms, at a low temperature, in much the same manner that most of our native evergreens do at times,—but no more,—and may be classed among the perfectly hardy trees for out-door culture. The specimen from which the enclosed photo was taken is growing in Fairmount Park, Philadelphia.



CEDAR OF LEBANON.

THE DAWSON ROSE.—One of the most beautiful hardy roses of recent production is the Dawson, named for Mr. Jackson Dawson, of Arnold Arboretum, Boston, Mass.

In effect, it resembles the Japanese *multiflora;* but the color is a most beautiful shade of pink. The flowers are large, in clusters, and very abundant. It will undoubtedly rank with Crimson Rambler in popularity, if it be pushed, and will probably lack the susceptibility to mildew possessed by the latter.

TREE OR BUSH IVIES.—What has been the experience with Tree Ivies in this country? As varieties of *Hedera Helix*, which thrives in certain favorable conditions, and is used everywhere extensively, it is reasonable to suppose they would prove satisfactory. But, in the absence of positive facts, MEEHANS' MONTHLY does not feel in a position to answer the question. If successful, they should be largely used, the compact, bushy growth and ornamental leaves being adaptable to many purposes.

NEW ROSES EXHIBITED BY THE NATIONAL ROSE SOCIETY.—At a recent exhibition, held under the auspices of the National Rose Society of Great Britain, some new roses of doubtless great merit were brought forward, among which were the following:

"Conrad Ferdinand Meyer is said to have been raised by successive crosses, in which were used Gloire de Dijon, Duc de Rohan, Marechal Niel and *Rosa rugosa*. The flowers are nearly four inches across, very fragrant, double, and of the beautiful color characteristic of LaFrance.

Soleil d'Or was obtained by crossing Persian Yellow and Antoine Ducher. In character, it most resembles a hybrid perpetual, and pro-

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duces double flowers three to four inches across, of very deep apricot color, shaded in the centre with orange. The foliage is like that of Persian Yellow.

The Lion is a large, single-flowered rose. It is bright rosy-crimson with a white centre. It is a seedling from Crimson Rambler crossed with Beauté Inconstante."

The exhibition was graced by Her Majesty Queen Alexandra, to whom was presented a bouquet consisting of roses named in her honor—Rose Queen Alexandra and Rose Her Majesty.

PICEA CONCOLOR. — Though by no means new, the Concolor or Colorado Fir is rarely seen among specimens on lawns. This is not because of its lacking adaptability and beauty, for it is one of the best evergreens of its class for hardiness and fine appearance.

Its ability to stand high winds has been questioned; but results and its natural location speak in its favor. Beautiful specimens are known to be thriving close to the seacoast —one of the most trying situations.

The symmetry of growth and distinct foliage are marked; while the color is quite similar to that of the Colorado Blue Spruce in many instances—rarely as fine.

THE HARDY FLOWER GARDEN.

IRIS TECTORUM.—This beautiful Iris species is now blooming in American collections. It was first described by the Russian botanist, Maximowicz, in 1871, who received the specimens from Japan. The leaves are strong and vigorous, much in the line of the well-known Japanese species, *I. K. lævigata*, or, as it is sometimes called, *I. Kæmpferi;* yet it is quite distinct. The flower does not extend beyond the leaves, but is large and showy, the three outer floral leaves or sepals being three inches long and about an inch and a half broad. They are of a violet color, prettily marbled with purple, and have a very prominent, white, purple-mottled, fringed beard in the centre.

The three sepals, or second series of corolla leaves, are nearly as large as the sepals, and the three flattened stigmas forming the inner series are purple with white margins and prettily fringed at the apex, making a very showy flower. It has proven itself very hardy and suitable for dryish locations.

SUPPLEMENTING OLD-FASHIONED FLAGS.—No garden of popular, old-fashioned flowers seems complete without the Flag, or German Iris. But with modern appreciation for the wonderfully beautiful Japanese varieties, the *older* varieties should be supplemented by the new.

In moist soil, the Japanese Iris flowers are of immense size, graceful and very distinct in character. Their blooming season follows the older kinds, making them additionally valuable. The colors and markings of the petals are more varied than the German.

The Oriental Iris is another indispensable kind to make a succession of bloom; while the dark blue flower is exquisite. It is of the *Sibirica* type, but has shorter flower stalks.

PHLOX PANICULATA.—The beautiful and showy flowers of *Phlox paniculata* (or *P. decussata*, as the hybrids are frequently known), form one of the most attractive features of the hardy borders during July and August. Those who have not seen an up-to-date collection have no idea of the wonderful strides made both in size and color.

In no class of plants is the contrast greater between the very poor varieties and the good ones. I have often felt convinced that the reason why the Phloxes are not more popular is because they are not better known, the old-fashioned purple, a white and perhaps one or two other varieties being generally associated with the name; yet in no genus of plants are the colors more vivid or of greater range, and each year adds to their number. Some of the newer ones are almost blue, a color that seemed almost impossible a few years ago,—likewise the vivid crimson and salmon tints.

Sown early, they bloom the first year from seed and are very interesting; but they seldom produce kinds equal to the named varieties, the majority reverting to the old-fashioned purple type.

Plants, left from year to year without special attention, gradually deteriorate in color, so that it is necessary to propagate and keep the borders supplied with young and thrifty stock.

Cuttings taken from the young growth when about three inches high, in spring, root very

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readily and flower the first year, forming heads of bloom on a single stem, and, although they do not attain their normal height the first year, make very showy plants and arrive at their best about the second and third, when the stock should again be renewed.

E. HEMMING.

THE OLD GARDEN.—We all love old gardens. It may be due to half-slumbering memories, racial and inherited, of that plantation by the Euphrates and Tigris, of which we have heard so much.

An angel met us at the gate withal, not bearing a flaming sword or even a flaming countenance, but with features radiant with good-natured welcome. With somewhat of oriental dignity, she threw back the gate of the picket fence and said, "Enter here, nor yet abandon hope!" We did enter and were at once in paradise—an acre teeming with every dear old flower. We were first transfigured before a myriad of Annunciation Lilies, with pure white trumpets sounding "Hosanna in the Highest!" How lovely they were, each glorious flower spotted merely with its own benison of gold.

Then, as it was near twilight, we stopped to see the opening of the evening primroses. We stood, awed, with finger upon lip, not uttering a word. With much the same holy feeling, we once gazed upon the Cyclorama of the Battle of Gettysburg and fancied the reincarnation of the dead. Before us was fought a ghostly battle—the advance, the heroic charge, the brave defence, the retreat. How dared one speak, much less smile or laugh, in such a presence? So, with the evening primroses, we watched in silence as the splendid creatures unfolded their pavilions, and each satin petal slid into its place. The calyx would suddenly turn down, too, almost with the motion of a salaam. While we stood there, some thirty superb blossoms underwent their apotheosis—and then, in the half light, seemed almost like the great, soft, downy moths which visit them. There is a puff of odor at the transcendent moment. It is the call to the sphinx—and lo he is here!

Next day, we saw the garden under other aspects—and under all it is beautiful. In one corner of it stands an immense Honey Locust, with light, delicate, pinnate foliage, a very king of his kind. Beneath and around him grow ranks of skirmishing larkspurs in our own infantry blue. Methinks those coreopses yonder, in yellow, are the cavalry—an arm of the service that ever appeals to me. There were several kinds of these. Among the real old-time plants, carrying us back half a century, were valerian, beloved of Grimalkin; thyme, suggestive of roast turkey; Southernwood, with subtle odor; bluebells and money. And what shall we say of the poppies, tossing their turbaned heads, waving their gaudy pennons, or bearing their silver caskets of seeds!

A charm of this old garden, and of any garden that I love, is that the plants come up when and where they will, and no questions are asked. Is this that I admire a weed or a flower? Who knows and who cares? This is not the place to study pedigree—and, if one does, he soon detects bars sinister even in the most pretentious families. Among charming things, we had not seen for a long time, were the blue Anchusa, cousin of the forget-me-not and bugloss, — and Gypsophila, or babies-breath. What a lovely common name! Its Greek one, I have to own—"lover of plaster of Paris"—is far from poetic, though it may be euphonious. All through this garden—which is not a dream realm, but an actuality—troop long trains of Rudbeckias, for my friend loves a pretty thing when she sees it, even if it occurs in a hayfield. It is a delight, in these midsummer days, to stroll in such a garden, to revel in its colors, to delight in its forms, to guess at or perhaps answer natural riddles.

We need not sail to fair Cathay,
Or in the land of Afric stray—
Let others o'er creation roam;
We find our wonders here at home!

Providence. WM. WHITMAN BAILEY.

FRUITS AND VEGETABLES.

PROFITABLE FRUIT CULTURE. — Southern Missouri has been regarded as a veritable gold field for fruit growing, but at the meeting of the State Horticultural Society, at Des Moines, last winter, Major Holsinger spoke as follows:

"The great apple belt of the Ozarks is a misnomer. I think the fruit interests of that section suffered more severely, from the Feb-

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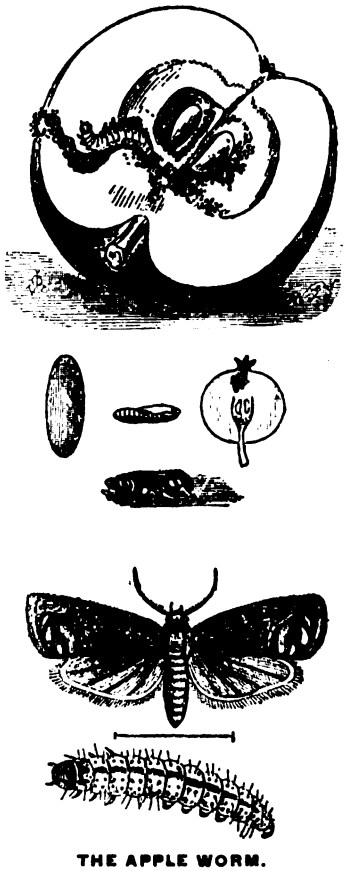
ruary freeze of '99, than did those of Iowa. Large peach orchards, some of them containing 20,000 trees, were entirely killed. Perhaps 50 per cent. of all the fruit trees and vines were killed.

"I have grown fruit, on a large scale, in the Ozarks, and know whereof I speak. Mr. Gano and I have been the promoters of an orchard of 2,800 trees in Southern Missouri. We expected to make that orchard a great success financially, but it has been a failure. The whole project has been thwarted, either by Providence or something else. The orchard, at this time, is almost entirely worthless."

The fact is, that there is no business of any kind, in the city or on the farm, that has a regular series of prosperity from year to year. The wise city business man takes care to have a surplus, made up from extra profitable years, on which to fall in less successful ones. Intelligent fruit-growing has been found as profitable as any other business, when conducted on good business principles,—and to this, many a good Ozark orchardist, as well as orchardists elsewhere, can bear abundant testimony. But one must look out for thorns and thistles that are sure to spring up along the road.

THE APPLE WORM.—The progress of knowledge has made it very easy to guard the apple tree against all its fungus and insect enemies,—the apple worm, perhaps, excepted. This still continues to be one of the most formidable foes of the orchardist. Though it has been figured and described often, it is not as well known among those engaged in general gardening as it deserves to be. We reproduce, for our readers, an illustration showing the progress of the insect in every stage, until its final destruction of the apple, for all know that a wormy apple soon becomes rotten. The winged insect is a night-flyer, and, it is said, can be caught by traps in which a light is used. The older methods consist of gathering and destroying the apples before the worms escape, and fastening hay bands about the trunks, in which the larvæ gather and may then be burned.



THE APPLE WORM.

These insects, known as fruit worms, belong to the order of *Carpocapsa*. The one illustrated is called *Carpocapsa pomonella*, and that found in prunes and apricots *C. funebra*, whilst that of chestnuts is the *C. splendana*.

IMPROVED CHESTNUTS.—In some respects, the word "improved" is a misnomer in connection with chestnuts. The American Sweet Chestnut is the only perfectly satisfactory one as regards flavor, and all others are not "improvements" in that line. But size is an important factor; and early production is essential to great satisfaction, and to obtain these, the "improving" is resorted to.

To see a small, slender chestnut tree, with two or three branches bearing several immense burs, is at least interesting—indeed it is ornamental. This is the case with trees grafted with such varieties as Paragon, Numbo, etc. They commence bearing while yet so young, and yield a succession of large harvests before the common American species commences to think about producing any, so to speak. The nuts are large, and, though of indifferent quality, are always in demand.

Chestnuts are difficult to graft, and, therefore, apparently expensive; but they are no trouble to cultivate and care for, and would give more pleasure to many persons than a fruit tree.

At present, the market demand for large chestnuts is great; and "chestnut orcharding" is considered very profitable. But the fact does not seem to have thus far been made well known, as very few large plantations have been made.

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BIOGRAPHY AND LITERATURE.

THE CEDARS OF LEBANON.

And such the colouring fancy gave
To a young, warm, and dauntless Chief,
One who, no more than mortal brave,
Fought for the land his soul ador'd,
For happier homes and altars free,
His only talisman, the sword,
His only spell-word, Liberty!
One of that ancient hero line,
Along whose glorious current shine
Names, that have sanctified their blood
As Lebanon's small mountain-flood
Is render'd holy by the ranks
Of sainted cedars on its banks!

THOMAS MOORE.

MRS. THOMAS P. JAMES.—Among recent deaths, date not given, though it must have been some time in August, that of Mrs. Thomas P. James deserves to be recorded. She died at Ottery, near St. Mary's, in Devonshire, England, at her daughter's, Mrs. J. Rose Troup, with whom she went to live after the death of her husband, Thomas P. James, in 1882. She was born at New Ipswich, New Hampshire, on September 2, 1819, and, marrying Mr. James, in 1851, removed with him to Philadelphia. He became one of the leading druggists of that city, and was well skilled in botany and gardening. He discovered Pursh's manuscript diary of his journey to the Great Lakes, in the American Philosophical Society closets, and had it published. As secretary to the Pennsylvania Horticultural Society, together with Caleb Cope, as president, this society reached an enviable reputation. Mrs. James was also a botanist of rare accomplishments. In a knowledge of mosses, she ranked among the leading American authorities; and, though of an unpretentious, modest disposition, had an extensive correspondence with those who were desirous of learning all about these beautiful plants. Another daughter, Mrs. S. M. Gozzaldi, still survives her, living at Cambridge, Mass.

A BOOK ON VIOLETS.—Miss Faustine Butler, 50 Forest Avenue, Portland, Me., is famous as a painter of wild flowers. Her work has been exhibited and admired at many expositions. She proposes to get some of her material before the public in book form, and will begin with the violet. Every known species, that can be obtained, will be painted in their natural forms and colors,—and the descriptions, though as strictly accurate as science would, will be in popular style. Such a work will surely be a treasure in the library of lovers of flowers. As the work will involve much labor and expense, the publication will probably be by subscription. For further particulars, correspondence may be had directly with the lady.

A PRACTICAL GUIDE TO GARDEN PLANTS.—By John Weathers, late Assistant Secretary to the Royal Horticultural Society, graduate of the Royal Gardens, Kew. Published by Longmans, Green & Co., New York.

This is a magnificent work of nearly 1,200 pages, and with 163 illustrations. All popular garden plants are described; and garden operations are given in detail. To give an idea of the cultural character of the work, as it relates to hardy border plants, we open, at random, and find it refers to *Liatris*. We are told there are 16 species, all natives of North America. Cultural directions follow for all the genus. Seven are especially described. Of the Kansas Gay-Feather, it gives all the popular characters by which it is known, and an account of the beauty for which it is admired, and says it is best treated as a biennial; grows well on dryish soil; seeds should be sown in autumn and transplanted where they are to remain in the flower garden in early spring. There is a glossary of the leading terms used in botany and gardening; and lists of plants and flowers, suitable for peculiar positions and uses, are numerous. It is, indeed, a complete cyclopædia of modern gardening, and there are few to whom it will not be of practical value.

Being an English work, by an English author, it is, of course, written from an English standpoint,—but gardening, as an art, is

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so highly developed in the Old World, that, in the few cases where a difference in practical teaching between garden art in the two countries appears, it is more than made up by the additional work covered by the wider experience of the Old World.

PRUNES.—If people are ignorant, it is not for want of chances to know. Here is a booklet issued by J. A. Coraham, District Passenger Agent, San Jose, Cal., free for all that ask for it, that tells as much about prunes as one may find in a blue- and green-bound, dollar volume, and for 15 cents, a complete cookbook of the prune. Even good Eastern fruit-growers may not know, till this booklet tells them, that the best growers do not transplant the prune, but set out an apricot or peach stone, and then graft the prune on it. One may wonder where all the prunes go, there being no less than 150 millions of pounds of cured prunes marketed from California last year. It took 6,000 freight cars to carry them to market.

NOTES AND QUERIES. — *Silver-rod.* — This plant-name, for *Solidago bicolor*, is not in the dictionaries.

Hopniss.—This word, a name for *Apios tuberosa*, is not in the dictionaries. It occurs in "Wild Flowers of North America" (1894), near pl. 216. It is said to be an Indian name, which is a statement open to some doubt.

Sotol.—This plant-name, for *Dasylirian Texanum*, is not in the dictionaries.

Spatlum.—The plant, *Lewisia redivina*, of the Pacific States, is called Spatlum (not in the dictionaries). The roots are eatable, and were much enjoyed by the members of the famous expedition of Lewis and Clark.

Kouse.—The plant, *Peucedanum ambiguum*, of the western U. S., is called Kouse; the root is edible. Not in dictionaries.

Sago.—In the Western States, the plant, *Calochortus luteus*, is called Sago; this is said to be its Ute name. The root is edible. The dictionaries do not give the word in this sense. [Sego, we believe, is the correct spelling.—EDITORS.]

Squatmore.—The Standard Dictionary gives this as "a plant used as a remedy for bruises." What is the scientific name of this plant? [One may have to look among the Stonecrop family for the answer to this. They were the general remedy for assuaging inflammations resulting from wounds and bruises. *Sedum* is derived from *Sedeo*, to assuage, and not from *Sedo*, to sit, as the dictionaries have it. It should be pronounced *Sĕdum*,—not *Sēdum*.—EDITORS.]

CURATOR OF KEW GARDENS.—Mr. Geo. Nicholson, the curator of Kew Gardens, and whose valuable "Dictionary of Gardening" has endeared him to garden-lovers everywhere, has resigned his position because of ill health; but it is presumed that his useful pen will not remain inactive. Mr. William Watson is promoted to Mr. Nicholson's position, and Mr. W. J. Bean takes Mr. Watson's place.

GENERAL NOTES.

CASCARA SAGRADA.—It is said, that the drug Cascara, extensively written about in medical journals, is the bark of two American Buckthorns—*Rhamnus Purshianus* and *R. Californicus*.

FRUIT IN ENGLAND.—The *Journal of Horticulture* says that plums and gooseberries have been so abundant this year, in England, as to be not worth the cost of gathering in many cases.

GRAPE CULTURE IN NEW SOUTH WALES.—New South Wales seems entering into lively competition with California in fruit culture. Regarding the grape, the London *Gardeners' Chronicle* says:

"In 1861, there were, in New South Wales, Queensland, South Australia, Victoria and Western Australia, 7,009 acres under vine-cultivation; in 1896 the area had become increased to 58,642 acres, the product being 5,606,035 gallons of wine, 7,901 gallons of brandy, 63,665,280 lbs. of table grapes, and 2,145,360 lbs. of raisins. The grapes grown in New South Wales are equal, in size and flavor, to the finest grown in continental Europe, but both their cultivation and the production of wine from them remain imperfectly developed as a whole. In 1897 the area under wine cultivation in the colony was 8,061 acres, producing 794,256 gallons of wine, 7,134 gallons of brandy, and 6,462,400 lbs. of table grapes. The raisin manufacture is still one of the industries of the future in New South Wales."

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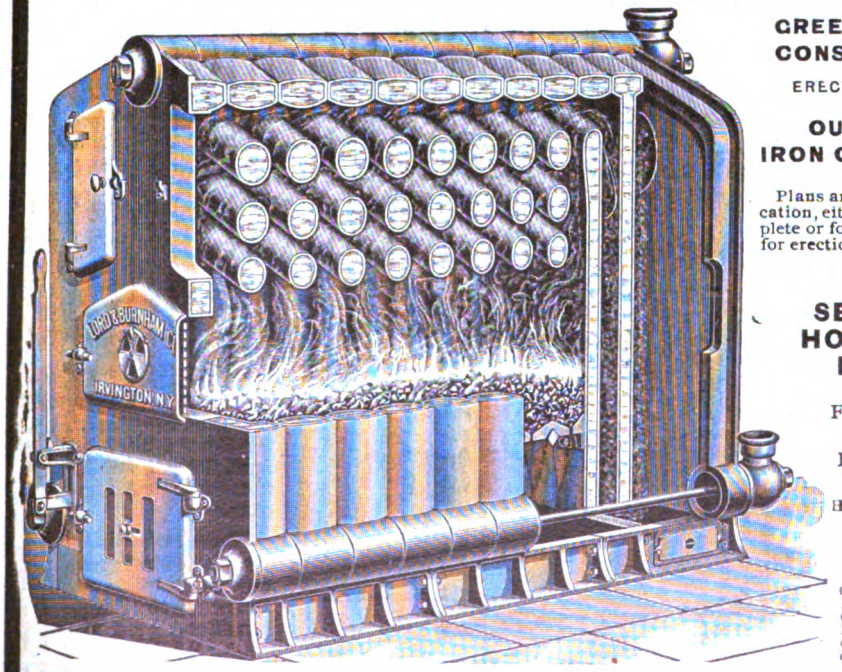

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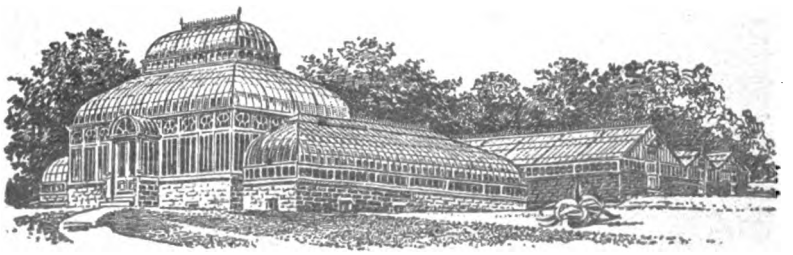

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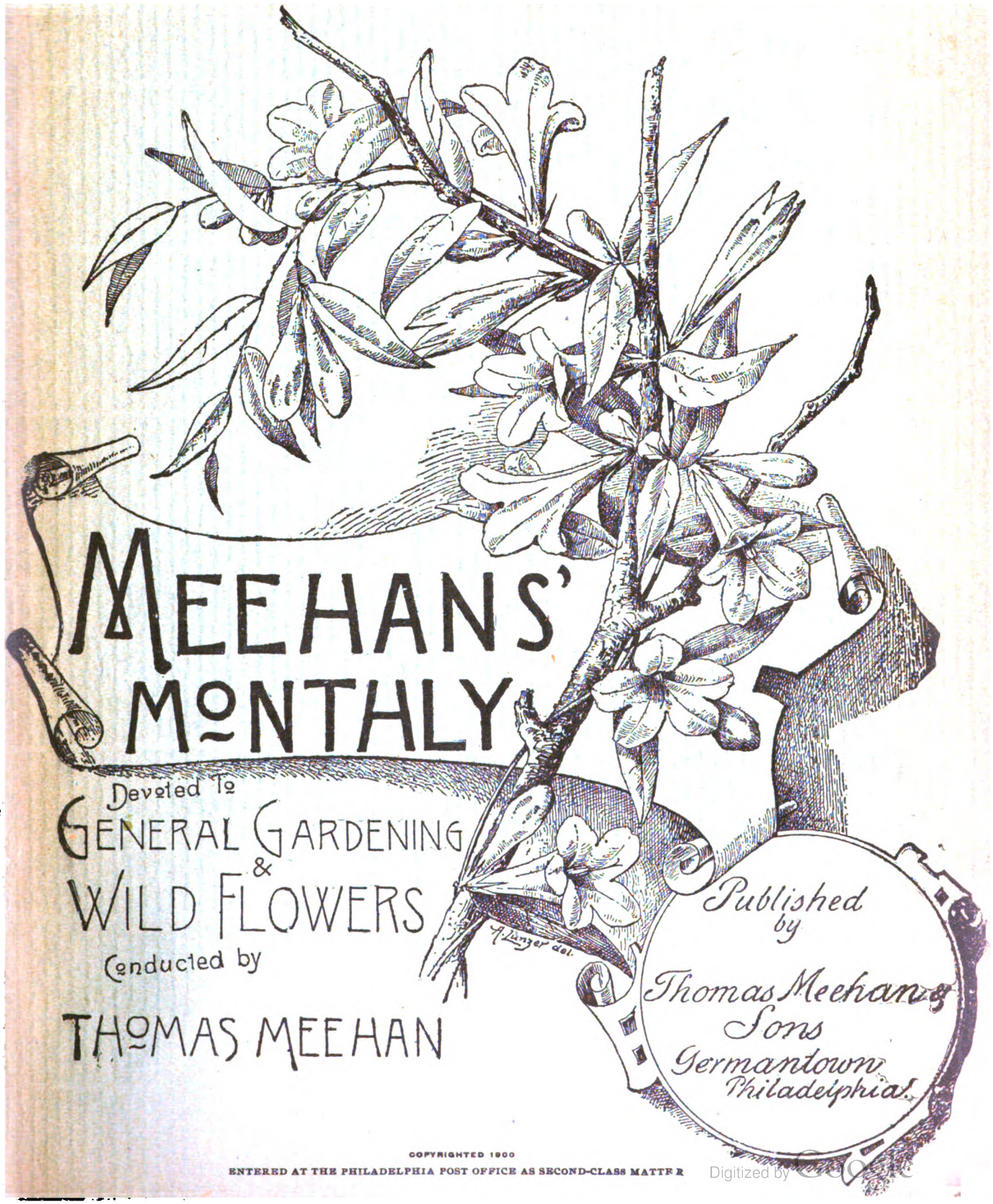

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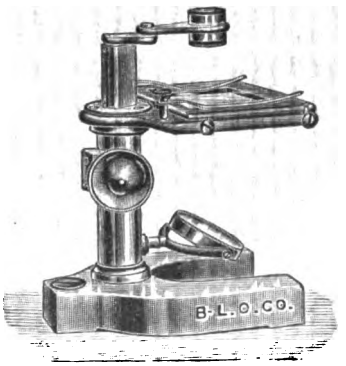

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WHEN WRITING TO ADVERTISERS, TELL THEM YOU SAW THEIR AD. IN MEEHANS' MONTHLY.

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PRINOS VERTICILLATUS.

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PRINOS VERTICILLATUS.

BLACK ALDER.

NATURAL ORDER, AQUIFOLIACEÆ.

PRINOS VERTICILLATUS, Linnæus.—Leaves lance-oval, serrate, acuminate, pubescent beneath; flowers axillary, the fertile ones aggregate, the barren sub-umbellate. Leaves narrowed at the base into a short petiole, uncinately serrate, with prominent, pubescent veins beneath. Flowers white, dicœcious, small, the pedicel scarcely more than one line in length. Berries scarlet, in little bunches (apparently verticillate), roundish, six-celled and six seeded, permanent. Wood's *Class-book of Botany*. See, also, Gray's *Manual of the Botany of the Northern United States*; Chapman's *Flora of the Southern United States*, and Britton & Brown's *Illustrated Flora of the Northern States and Canada*, as *Ilex verticillata*.

Often growing in swamps, with members of the alder family, and with leaves somewhat resembling an alder, our plant has come to be generally known among the people as Black Alder,—the dark wood distinguishing it from the usually lighter bark of the true species of Alder. The popular mind has never associated it with the hollies, of which the European *Aquifolium* is the popular type. Nor have botanists thus associated it, to any great extent, —though Duhamel, the author of a treatise on the trees and shrubs cultivated in French gardens up to 1755, refers to it as a deciduous holly,—*aquifolium foliis deciduis*,—suggested as much by the berries as anything else. Our early botanist, Clayton, seems to have been the first to employ the name *Prinos* to our plant. He, like Duhamel, only noted that it had "the berries and seeds of a holly." In Schreber's edition of Linnæus, the name is adopted and our species described,—and so it has remained as distinct from the true hollies to our times. Aside from the popular failure to see anything like the conventional holly in our plant, botanists believed there were good characters to distinguish it. The true hollies—*Ilex*—seemed to have the parts arranged on the type of two, —three prevailed in *Prinos*. Thus we find, in the former, a four-cleft calyx and corolla, eight stamens, and a four-celled berry; in *Prinos* we have the parts in three, six, or nine. There are occasional variations from this general rule, with the result of abolishing *Prinos* as a distinct genus from *Ilex*, or the true hollies. In recent times, it has come to share, with the holly, the honor of being chief in the Christmas adornments in the Atlantic seaboard States. The holly is often dicœcious,—the male plants not bearing berries. The bright berries among the green leaves is a prominent feature of admiration. The male holly, once neglected, is now beautified by having fruit of our plant ingeniously attached to the holly branches. This is especially the case when the holly is worked into wreaths.

The holly of Europe, *Ilex Aquifolium*, is the *aquifolium* of classical writers, notably Pliny, the great Roman writer on natural history. His description of the *Aquifolium* tree is conclusive. Linnæus was fond of continuing ancient names to represent the adjectives in his binomial system, and, in this way, the old Roman name of the plant has been preserved to us. The term *Ilex*, by which we now know the holly family, was employed to designate the oak, which now produces the nut-galls of commerce, botanically *Quercus Ilex*, or *Quercus coccifera* of some authors. The holly and Christmas seem closely associated in the minds of polite writers. Says Lowell, in the vision of Sir Launfal:

"Within the hall are song and laughter,
The cheeks of Christmas glow red and jolly,
And sprouting is every corbel and rafter
With the lightsome green of ivy and holly."

The origin of the prominent place occupied by the holly in Christmas festivals is not known. It is possible that the bright red berries seemed to add cheerfulness to the green of the foliage, —but this could not be all. It seems to have been employed in the olden Scandinavian mythology, long before Christmas Day was thought of. This, indeed, is one of the latest of religious festivals. In the earlier Christian

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ages, all efforts to identify the birthday of Jesus failed, and, at length, it came to be celebrated with the birth of a new year. Evergreens were largely used in decorations on these festival days, and the holly was doubtless employed among others. If any reason could be found for the special veneration of the holly, it might be found in connection with the ancient Druidical belief that the woods were peopled by the spirits of the departed, and that it was the duty of the living to care for them. In very severe weather, evergreens were hung in dwellings, so that these spirits might take refuge and have protection. In this respect, the prickly holly would naturally present special advantages. In ancient times, when sentiment was a greater moral force than it is to-day, plants and flowers served especially to illustrate great truths. To teach that we already owed all to Providence, without any claim to additional reward, the great Chinese philosopher, Lao-tze, a contemporary of Confucius, nearly three thousand years ago, wrote: "All plants shoot up in spring without a word spoken, and grow without a claim to their production. They accomplish their development without any display of pride, and the results are reached without any assumption of ownership,"—and this spirit of thankfulness was again florally illustrated, a century later, by the injunction to "consider the lilies of the field." It may be safely concluded that, in some way now lost in the obscurity of time, the special veneration for the holly had some deep symbolical association.

So far as our representative of the family is concerned, *Prinos verticillatus*, no sentimental memories surround it. Its relation to mankind is of purely material record. During the war for the Union, the Southern people were sorely pressed for medical material. Dr. Peyre Porcher was employed to investigate the resources of the Southern fields and forests. Of our plants, he notes that it is also called Winter-Berry as well as Black Alder, and says: "The berries and bark are tonic and astringent, and are used in intermittent fevers, diarrhœa, and diseases connected with a debilitated state of the system, especially gangrene and mortification. It is a popular remedy in ill-conditioned ulcers, chronic cutaneous diseases; administered internally and locally as a wash. The bark and berries possess, in an eminent degree, the properties of the vegetable astringents and tonics, combined with antiseptic powers highly spoken of. They are extensively prescribed, in some parts of the country, in diarrhœa, and, as a corroborant, in dropsy. The leaves are employed as a substitute for tea. The plant was used by the Indians. It may be taken in substance, in doses of thirty grains to a drachm, to be repeated, or a decoction made with two ounces of bark to three pints of water, of which three ounces may be taken several times a day. A saturated tincture of the bark and berries has also been used. Bigelow did not speak highly of this plant; but W. P. C. Barton extols it and recommends it to the profession."

The Black Alder has not much effect in floral scenery during the summer and autumn when other plants are in their glory. The flowers are of a greenish-white and inconspicuous. For the most part, the plants are dicœcious,—for, though there appear to be stamens or pistils in each plant, one or the other is usually too weak to perform its functions. Occasionally, however, both will be potential, in which case we have hermaphrodism, and abundance of berries on isolated plants.

Not even do the leaves contribute anything to the fame which an American autumn has achieved by its wealth of colored foliage, as they have no shade of brilliancy in their decay. They pass away of a dull black hue, and fall at once when the berries begin to take on their bright, winter hue. In this respect, however, they contribute fully their share of pleasure to mankind during early winter. Without the profusion of their gay berries, many of our meadows would be dull, indeed.

The Black Alder has a wide geographical area. Dr. Robinson, in Gray's "Synoptical Flora," has it as from Canada to the Great Lakes, south to South Carolina, Illinois and Alabama; and it is also found under one of its slight variations in Japan. Herbarium specimens indicate considerable variation. In the Schweinitzian Herbarium, the leaves in the Salem, N. C., plant are three inches long by less than an inch wide; while the leaves on a Mt. Desert specimen, of Redfield, are almost round. Mr. Merritt L. Fernald, in *Rhodora*, vol. 2, p. 104, would even give varietal names to some of the forms. His specimens are very light and twiggy.

EXPLANATION OF THE PLATE:—1. A branch from Eastern Pennsylvania, taken in October. 2. Cross-section of a fruit.

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WILD FLOWERS AND NATURE.

NATURE NEVER FAILS.

Yet are thy skies as blue, thy crags as wild;
Sweet are thy groves, and verdant are thy fields,
Thine olive ripe as when Minerva smil'd,
And still his honied wealth Hymettus yields;
There the blythe bee his fragrant fortress builds,
The freeborn wanderer of thy mountain-air:
Apollo still thy long, long summer gilds,
Still in his beam Mendeli's marbles glare;
Art, Glory, Freedom fails, but Nature still is fair.

BYRON.

INFLUENCE OF EXTERNAL CONDITIONS IN PRODUCING VARIATIONS. — Continuing a thought introduced by the last paragraph in the leading article, *Prinos verticillatus*, external conditions have only a secondary influence on producing variations,—the primary cause is the varying degree of life-energy in the plant itself. The English holly illustrates this clearly. Plants do not flower till the vegetative or growth-force has been somewhat lowered. With this decrease in power, the upper leaves become smaller and entire, losing their marginal thorns. The more vigorous the branches, the thornier the leaves. Some local conditions may, therefore, affect the growth-force, and some change of form may follow. To a certain extent, these changes become hereditary,—but reversion occurs in a gradual way, when the original incident in the change is removed.

VARYING COLORS IN PLATYCODON.—I send, by mail, a specimen of *Platycodon grandiflorum*, which shows flowers pure white, purple, and white with purple stripe. This may not be new to you, but it seemed worth sending, and if as peculiar as it seems to me, it might be worthy of a note in your excellent MONTHLY.

Teuton, N. J. AUSTIN C. APGAR.

[*Platycodon* behaves in this way, sometimes,—but the fact is worth noting in order to incite inquiry as to its cause, for other kinds of flowers are equally freaky. In a general way, we know that bright colors in leaves and flowers are coincident in a greater struggle for life. On dry deserts, on mountain tops, or in icy regions, the prevalent colors are of the warmest types. The same law probably rules in striped or blotched flowers,—but the exact manner of ruling in these closely related cases has not been explained.]

ROT IN TREES.—Can we never get at the simple facts? "J. M." writes: "Does not the possessing or not of a sound or an unsound trunk depend altogether on the admittance or not of outside air to it?" I think not. I have known a great many holes bored into trees and left open, without producing rot, and a great many limbs removed by man and storms, and the knots remain uncovered till grown over, or for years without being grown over, and without rot of knot or trunk. Not only do uncovered knots admit air into the trunk, but since trees feed largely from the air, I suppose air is always present in the trunks. Without stopping to quote facts in proof, is there any doubt that there is air in trees? As to producing rot, we get water out of wood, and let air take its place to prevent rot. Fell a beech, for instance, in March, and quarter a good-sized, four-foot stick from it, and notice how soon its ends and cleft sides will season and rot, commencing under the bark farthest from the ends and sides. The air and shrunken pores at the ends of the stick obstruct the free passing out of the sap from beneath the water-tight bark, and rot ensues, the same as, I think, it is very liable to do when a knot full of sap is covered vapor-proof. Does "J. M." think that painting the sides and ends of said beech stick would prevent the rot? Years ago, I had experience in painting a large, green, White Pine liberty pole. "J. M." says: "Moisture will never start rot of the trunk, or dead wood of the centre, so long as this centre is surrounded by living wood, excluding air from it." I cannot understand how any one, who has sawed logs in a lumber mill, or felled timber in the forest, can make such a statement. Rotting knots often cause decay in the trunks, but that

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all decay in trunks is caused by rotten knots, I do not think true. How is it with those tall White Pines that have streaks of red rot in them, from the stump far up into the top? There will be a great many of them on some lots and none on others. How about small rots (only a few feet in length) in the butts of large pines? How about the hollow-butted White Oaks, whose large, black cavities extend up from the ground four feet or less? One of the finest White Oaks I ever cut, greatly disappointed me by proving to be rotten from the stump to far into the top with a white rot. I never saw any possibility of these rots resulting from rotten limbs, and "J. M." is the only one I ever knew to suggest it. Certainly, these rots are surrounded by living wood and generally not traceable to knots.

Exeter, N H. J. D. LYMAN.

EXTRACT OF WITCH-HAZEL.—The October number of the MONTHLY contains a beautiful and timely illustration of the Witch-Hazel, as its time of blooming approaches. Soon, its yellow threads will be exposed to the rude winds of autumn—hanging out among its partly colored and broken foliage, and ripening fruit in which the children nut-hunters find nothing but occasional insects.

Agriculturally, the plant has no value, as it hardly grows large enough for fuel, but makes a bushy clump full of branches. It is found abundantly in bush pastures, and the only good thing to be said about it is that it acts as a nurse plant for better forest growth, to which it gives way.

Medicinally, it has a great reputation. Pond's Extract of Witch-Hazel is manufactured by thousands of gallons in Middlesex County, Conn., as a remedy for wounds, bruises, etc. It is sold by the bottle and the barrel, and is in wide demand.

Now comes in the agriculture. Witch-Hazel brush—the whole plant, body and branches—is cut up short in a huge straw-cutter, and a fluid extract is prepared.

The farmers get just enough for cutting and delivering the brush to pay for the labor, thus getting pay for clean pastures within the reach of the factories. Other parts of the State would like to share, with Middlesex County, in this market for an otherwise useless product. We had our first frost, last night, though the woodlands are already tinged with the hues of autumn, which this year should be glorious, for the foliage is very healthy and luxuriant.

West Cornwall, Conn. T. S. GOLD.

LEAFLESS PLANTS.—So accustomed are we to think of plants as green, we do not realize how many not only never exhibit that color, but, indeed, possess no leaves. The vast hordes of fungi, indeed, do not even have anything suggestive of foliar organs.

It is not of these, however, that we intend here to speak, but of certain plants of high ordinal relations, which, ancestrally possessing leaves, have come in time to retain merely reminiscent and functionless scales in their place. Most of such plants are what the botanist knows as saprophytes; *i. e.*, such as derive their sustenance either from decaying vegetable matter, or which lead a commensal existence with the host. In the latter case, they appear to serve the host assimilation of nitrogen or other soil constituents, while they, in turn, benefit by the leaf-work of the host.

Various families of plants, in no other way related, are by this saprophytic habit associated and come to resemble each other. Every one says of Indian-pipes, "How fungoid they are!" Yet are they in no way of mushroom origin, but belong to the highly-organized heath family. How one would like to know their history, and how they came to adopt their secret habits! In them, the leaves are reduced to scales,—so pure, white and veinless as to appear made of crystal.

The single-flowered Indian-pipe is familiar in all our darker, colder, northern woods, where its ghost-like flowers always give one a sort of chill. The Pine-sap is less well known. The whole plant is fragrant and contains several flowers in each cluster. It is a curious fact that, while the terminal one is constructed on the plan of five, the lower ones all show the numbers three or four! The Pine-drops is a rare relation of these, found westward of us. Of the same family, too, is the conspicuous, blood-red Snow-plant (*Sarcodes*) of the Sierra Nevada.

A quite remote class of plants, closely affiliated to fig-worts, are the broom-rapes. Among these are the Beech-drops, now in full bloom, and so conspicuous in beech groves. They are purplish or yellowish-brown, much branched,

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and from six to twelve inches high. The Cancer-root, or Squaw-root, also occurs in New England, but I have never found it. In spring, however, the Naked Broom-rape, or *Aphyllon*, is common in Rhode Island, with its purple and yellow flower. It is really pretty.

These notes would be incomplete without mention of the coral-roots—members of the Orchis family, presenting the peculiar saprophytic features—and of several species. All of these possess the toothed, much-branched, coral-like rootstocks, from which they derive their very appropriate, scientific and common names.

We might mention certain intergrading forms in all of the families possessing saprophytic features. The change, indeed, appears not to have been abrupt, but transitional. It, no doubt, represents countless cycles of years!

Providence, R. I. WM. WHITMAN BAILEY.

THE ATTRACTIONS FOUND IN A LITTLE SAND.—I was on the Mississippi River shore the other day. I was fern hunting on its banks. There was an immense rock on the shore which jutted out well into the river; as the water was low, I walked out on the rock a considerable distance. The rock was mostly smooth, but there were occasional pockets or depressions in the rock, which were generally filled with sand. This sand had a pinkish color, and I gathered some, which I wrapped in paper and brought home with me, to examine through a magnifying glass. In strong sunlight, I found many diamonds, some rubies, a few emeralds and many pink, rose-pink stones. These rose-pink stones made the coloring of the sand, for there were many of them. Besides these precious stones, was much black sand. Remembering Edison's experiments with black sand, I procured a magnetized tack hammer and swept it over the sand, when lo, and behold! the hammer, when withdrawn, was covered with the minute particles of magnetic iron ore. Now here is a point for those who spend their summers on the seashore,—always carry along a magnifying glass, and a piece of magnetized iron. This will give to their owners a fund of pleasure to draw upon when all else fails.

Festus, Mo. F. K. STEELE.

[Whether traveling or not, every one should have a good lens in his pocket. To children, such a present is often precious. To one little tot, who had a Christmas gift of this character, the first experience was a pinch of salt. "I never knew before that a little salt looked like a pile of square street-paving blocks." A good lens to a child is introducing it to a new world.]

THE ODOR OF FLOWERS.—MEEHANS' MONTHLY has called attention, at various times, to the singular fact, in connection with the supposed close relation between insects and flowers, that odoriferous species are comparatively scarce. Of the very large number of species of violet, only one was thought worthy of being named by Linnæus as *Viola odorata*. The same is true of *Lathyrus odoratus*, the Sweet Pea,—*Reseda odorata*, the Mignonette, and numerous others. The matter has been taken up in the Old World.

"A German botanist is said to have discovered that out of 4,300 species of flowers cultivated in Europe, only 420 possess an agreeable perfume. Flowers with white or cream-colored petals are more frequently odoriferous than others. Next in order come the yellow flowers, then the red, after them the blue, and finally the violet, of which only thirteen varieties out of 308 give off a pleasing perfume. In the whole list, 3,880 varieties are offensive in odor, and 2,300 have no perceptible smell, either good or bad."

Unfortunately the statistics given here, as in so many other cases, are found worthless on analysis. It is said that 4,300 species were examined. Of these, with an agreeable perfume, there were 420; with an offensive odor, 3,880; with no odor at all, 2,300. But these figure up 6,600, instead of 4,300.

And if these were personally examined by the "German botanist," he must have had many more leisure hours than fall to the lot of an American man.

WALKING STICKS.—Instead of importing "pepper-sticks" for making canes, why would not the abundant Floridian shrubs of the genus *Eugenia* be thus utilized? The mangroves of that coast ought also to be turned to some such use. C. W. G.

[The Mahaleb Cherry is grown in Europe for walking sticks. There seems no reason why it could not be done here.]

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GENERAL GARDENING.

GARDENING IN OLD AGE.

As when the twilight of a weary life
  Comes on with quietness and purity,
And, after vainly struggling in the strife
  Of pleasure or ambition, from the eye
  The film falls, and the mantling vapors fly,
And man stands forth in his pure, native worth,
  And, after tears for lost years hurried by,
The soul awakens to a second birth,
And for a few hours knows there is a heaven
  on earth. PERCIVAL.

PRUNING FALL-FLOWERING SHRUBS.—It is an oft-repeated piece of advice, yet as often unheeded, that fall-flowering shrubs require winter-pruning, and, usually, severe pruning brings the best results.

The familiar example of such pruning is the large-headed, hardy Hydrangea. An unpruned plant—especially if old—makes a weak growth and small, numerous heads. A plant of any age, pruned back to a strong bud above the old wood, shoots forth with immense vigor, and the heavy cane thus induced makes a large head. How difficult it is to bring one's self to cut off nearly all the wood just made so nicely; but how much harder to see a weakly plant doing its best to support all the old twigs and strong, new growth as well!

The Althæa is another shrub to be considered in the same class—in fact, all fall-blooming plants.

PLANTS FOR ORNAMENTAL HEDGES.—Not many years back, the popular hedge plants in this country were Osage Orange, *Cratægus Pyracantha* and Honey Locust,—aside from the Hemlock and Norway Spruce and Arbor-vitæ, the popularity of which changes but little from year to year. Buckthorn has also been largely used in some sections.

Now, in most mild-climate sections, the "Californian" Privet has largely supplanted all others. The reason for its popularity is obvious, for perhaps no other plant in general use adapts itself so well to all conditions and maintains in all stages a good appearance. It can be kept, almost indefinitely, a small hedge,—say 18 inches in height; or it may be allowed to make a high wall 8 or 9 feet in height. This strong-growing power makes pruning necessary twice a year when desired to keep a comparatively small, bushy hedge; but should one or both prunings be omitted by neglect or any other cause, unlike the Osage Orange, the continuing growth is not rampant and liable to spoil the form of the hedge.

The Californian Privet is not strictly so hardy in some places, and is occasionally supplanted by the hardier European species, *Ligustrum vulgare*, or the buckthorn. The latter is particularly hardy, and makes a nice, ornamental hedge with a little care. In addition to the pretty, dark foliage, the black berries are ornamental.

Other very hardy plants to be mentioned are the barberries, *Berberis Thunbergii* being the most popular. Where a low hedge is wanted of a less formal appearance than a small privet hedge would have, nothing excels this remarkably pretty hedge. The natural average height is 2 or 3 feet. In fall, the distinctive, small leaves turn a most brilliant shade; while the scarlet berries, remaining all winter, are highly ornamental.

The hardiest hedge plants in general use may therefore be considered as follows: *Berberis Thunbergii*, *B. vulgaris*, *B. vulgaris purpurea*, Honey Locust and Buckthorn. *Ligustrum vulgare* ranks next in hardiness, followed by *L. ovalifolium* and Osage Orange.

In placing the Californian Privet well down the list, it should not be considered very serious. Near Philadelphia, it takes the most severe winter experienced to simply injure the tops; and much further north it will stand with no more injury than to kill the tops, serving as a natural pruning.

Age of Plants.—The question is so often asked as to the best size and age of plants to set out, it seems appropriate to speak of it here. Nurserymen offer plants one, two and three years old and over, the heights ranging

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from 1 foot to 5 or 6. Some grades are bushy; others, the one-year plants, usually, have but one or two stems.

Naturally, one-year-old plants, standing in the original cutting rows, have fewer roots than older and transplanted plants; but only considering ease in transplanting, these young plants are just as likely to live as older ones. This may not apply to other kinds of plants; the easy-growing privet only is being considered. But, if there are any disadvantages of climate or location, older and better-rooted plants will have greater chance for success. They will stand more hardship and make more uniform growth. Therefore, the planter can not only rest assured that larger plants will be suitable to set out, but will make a more regular and better-developed hedge in a shorter space of time.

FALL-FLOWERING SHRUBS.—There is amongst planters and gardeners, a great demand for fall-flowering shrubs, owing to the fact that there are so few which bloom at that season.

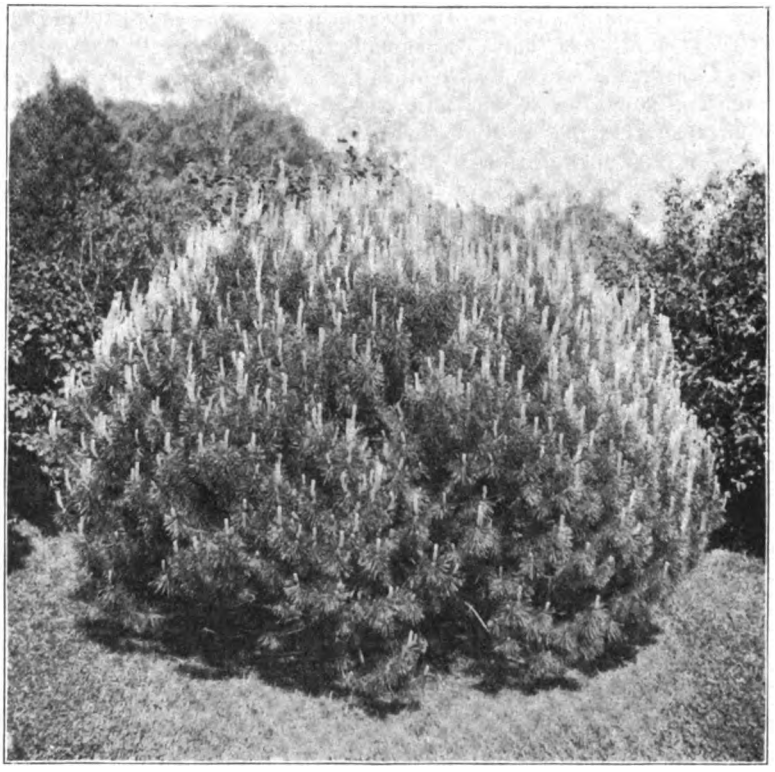
Among the most prominent are Hibiscus, Hydrangea, Desmodium and Caryopteris.

The *Hibiscus*, or, as it is generally known, Rose of Sharon, is quite an old and well-known shrub, which blooms during September and October, bearing flowers with colors varying from white to a dark red and purple. This shrub can be planted either as a specimen or in hedge form, being effective either way.

The *Hydrangea paniculata grandiflora* is undoubtedly the best, if not the most popular, of the above-mentioned shrubs. It bears masses or, speaking more correctly, panicles of large, white flowers, which make a grand sight. It should be planted by all lovers of pretty flowers.

We next come to the *Desmodium*. This shrub is not as well known as it might be. The plant is somewhat of a herbaceous nature, dying down to the ground each year, but, nevertheless, getting stronger. *Desmodium penduliflorum* bears purple flowers, which resemble our common sweet pea, only being smaller, and are borne in great profusion.

Caryopteris is another fall-flowering shrub of great merit. It flowers during late September and October, bearing bright blue flowers in the axils of the leaf-stalks.



PINUS MUGHO.

The above-mentioned shrubs are among the ones generally used by the planter in laying out gardens where a continuous-blooming season is required. W. J. C.

DWARF MOUNTAIN PINE.—The Dwarf Mountain Pine, of high elevation in Europe, comes to gardens in three forms, which botanists have named *Pinus Mugho*, *Pinus pumilio* and *Pinus Montana*. Botanists themselves have since concluded that they are all but varieties of one thing, and class them all as *Pinus pumilio*. Taking them as a whole they,

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indeed, seem only dwarf forms of the Scotch Pine. But the individual differences are so great that the nurseryman has to keep the forms separate under their distinctive names, and the beautiful specimen illustrated on page 167, from one growing on the grounds of the Hon. Thomas Potter, of Chestnut Hill, near Philadelphia, is of the kind known as *Pinus Mugho.*

It has been said of Landscape Gardeners that an experienced person can usually tell the name of the landscape artist who designed certain grounds by the kinds of trees and shrubs used to work out his plans. In different parts of the Union, one may occasionally come across one place where dwarf pines are used extensively, and much admiration is excited by the part they play in the beauty scene. It is seldom that a wrong guess is given of the artist's name. As one may judge from the illustration, the plant may be an element of great beauty in the hands of a great landscape gardener.

THE CALIFORNIAN MAMMOTH TREE IN GREAT BRITAIN. — A correspondent of the London *Gardeners' Chronicle* notes that the late Marquis of Huntley, on his estates at Orton Longueville, between 1853 and 1860, planted some 300 trees of the *Sequoia gigantea* about his grounds. They are now from 60 to 80 feet high, and from 12 to 20 feet in circumference. Some of them have produced cones in great abundance for years past; others are more or less unproductive, a fact common to most species of forest trees in America. The gardener, Mr. A. Harding, has sown a few of the seeds at different times, but find few germinate.

This latter fact is also common to most coniferous trees in America, that are in a measure isolated. It is only when numerous trees are together in company, that seeds are "full," as the botanical term goes. This arises from the fact that the male flowers are perfected in advance of the females, and the latter fail to get pollinized. The "seeds" are found to be hollow in almost all the cones of any conifer grown in gardens. So far as the mammoth tree of California is concerned, the comparative scarcity of trees in the groves produces the same result as in garden plants. The larger proportion of native seed, collected in these days, are hollow. If the collector gets seed with 25 per cent. of sound seed, he thinks himself fortunate. As, however, the purchaser buys seeds by weight, the light seeds do not count largely in comparison with the heavier ones.

CATALPA BIGNONIOIDES. — In many of the treatises on the *Catalpa speciosa*, in relation to its value as a timber tree, which come before me, the species *bignonioides* is spoken of in a disparaging way. For instance, in one before me now, it is said, "This tree is of small growth, crooked and seldom forming a well-shaped tree," and further on, "this worthless variety." The writers have in mind the value of trees for timber purposes, and, in a general way, there is no objection to the terms they apply to *bignonioides*, comparing it with *speciosa*. *Speciosa* is undoubtly the one for timber purposes, but, when it comes to an ornamental tree, give me *bignonioides*. Its spreading, round-headed growth is of much beauty; and, when in flower, it displays its huge panicles to much better advantage than does the lofty-growing *speciosa*. It can hardly be called "of small growth," even with *speciosa* in mind. It is not as tall a tree, but there are many in this vicinity forty feet high and as many in width, and botanies say of its height, "fifty to sixty feet." It is a grand lawn tree, its large, tropical-looking leaves suggesting its history, viz., a native of the Gulf States, which has gradually crept north as far as southern New York. JOSEPH MEEHAN.

SELECTING STREET TREES.—It is not an easy matter to choose between a number of available trees for sidewalk planting, and at the same time make the selections to suit the immediate location. The writer recently witnessed a case with such difficulties attached, and, with a rather disinterested position, he could not but pity the confused parties.

A committee of three had been delegated by a church congregation to purchase suitable trees for the sidewalks bounding their city church property. The pleasing of a large body of people was in itself a difficult task. These men appreciated the value of a permanent tree, like the Pin Oak, and were willing to discard the rapid-growing, but short-lived Poplar and Silver Maple. Beside the value of permanency, the sturdy character of the Pin

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Oak, its adaptability to city-street culture, and its ultimate great beauty in course of development, were recognized. The greatest objection seems to be in the comparison between the growth made by the younger trees of this oak and some upright, clean-branched tree like the Sugar Maple. The slightly pendulous habit of the Pin Oak's lower branches, so beautiful when the tree gains more height, detracted from its appearance as a street tree while young. But the necessary careful pruning remedies this largely and few will recognize an unsightly tree in a young, thrifty Pin Oak set and closely pruned.

The American White or the English Ash are pleasing trees, the appearance always being the same and the growth being fairly rapid. Few trees are better adapted for street planting. In the case cited, the soil where the trees were to go was a heavy clay. The Ash does not object to somewhat heavy soil; neither does the Pin Oak.

The Sugar and Norwegian Maples have their advocates, and in many respects they are very desirable. But in the clayey soil the growth might be slow and unsatisfactory.

Oriental Planes do well in such situations and make rapid growth; but some do not like the appearance of a somewhat old tree, which usually loses its symmetry and compactness.

One of the most approved methods is to plant half the required number of one slower-established, more permanent tree, such as the Pin Oak, and the remainder of a rapid-growing tree for early, temporary results. The Pin Oak and Oriental Planes are good examples for such use, being alternated in the rows. Set a little close—say 20 feet apart—the less desirable alternating; the others may be cut out as occasion demands.

FUNGUS AND PLANT DISEASES.—Every new discovery, of practical use to man, is liable to be taken up by people who know little of the subject and yet push it to extremes. In regard to the influence of fungus in the diseases of plants, nearly every abnormal structure is referred to fungus action. To such an absurd extent is this pushed that the mere practical man is pushed to the other extreme, and it becomes difficult to have him believe that it is worth caring for fungus attacks. He well believes that disease has a firm hold on a plant before the fungus attacks it. He looks, indeed, on the fungus as beneficial, as acting the scavenger to help nature clear away that for which she has no longer any use. Midway between these extremes lies the truth.

In many cases, the fungus can only thrive on tissues already diseased or dead,—on the other hand, the evidence is just as conclusive that many species of funguses fasten themselves to plants, just as the Mistletoe attaches itself to tree branches, and produce disease. This is especially true of that class known as ferment funguses, which, as they germinate and develop, produce an acid that is often very deadly, though generally of great service to man. In the human system, they seem to generate nitric acid, and this leads to blood-poisoning. Just what they generate in plants, does not seem to have been surmised—but the fact of fermentation is apparent to the senses. Take, for instance, the case of Fire-blight in the pear,—that occurrence by which huge branches of a pear-tree may have the leaves turn black in a few hours, as if stricken by lightning.

Indeed, in the early history of the disease, it was not infrequent to have electricity called in to account for the trouble. But electricity does not give out the smell of decay. The smell of decaying fruit is so strong from the blackened leaves that no one can doubt the fact of fermentation. Indeed, Prof. Burrill detected a special ferment fungus in the stricken branches, which he named *Bacillus amylovorus*, or the Starch-eater. But when we examine the blackened-leaved branch, and trace it down to where it is still green and sound, we find at that spot a fungus had viciously attacked the branch, killing the bark and wood, and had been acting for some time before the final trouble came, at length emitting a fermentative substance that went up with the circulating sap through the whole branch, and left its agent in the structure as the Starch-eater of Dr. Burrill. Nothing can be more convincing, after a close examination, that fungus is really the cause and not the effect of Fire-blight. The practical man can well afford to laugh at those extremists who see nothing but fungus in plant diseases,—but he must not ignore facts like these. On his recognition of them will depend much of his success.

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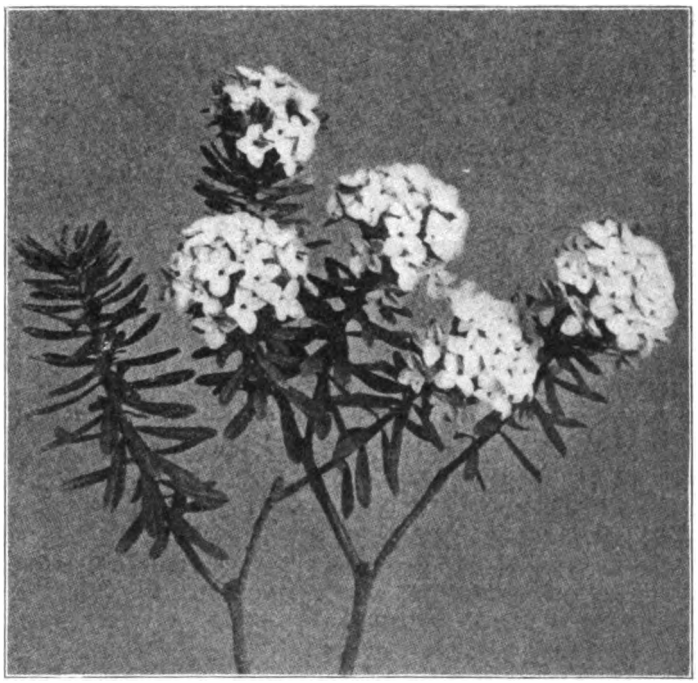
NEW OR RARE PLANTS.

DAPHNE CNEORUM.—Considering the classical associations gathered around Daphne,—who was one of the virgins of Diana, and was reported by Ovid to have been turned into some beautiful flowering bush now bearing the name,—it is strange that those who are continually looking for English names referring to the ancient story have not dug up something that might be appropriate to our plant. But it continues everywhere as *Daphne Cneorum*, with no one objecting that it is a



DAPHNE CNEORUM.

hard name. The bright, rosy-pink heads of sweet flowers, on its about six inches of height, are so unique in appearance as always to attract attention. It grows naturally in rocky or stony places along the shores of the Mediterranean Sea, and must present, as a wild flower, a very unique appearance. In our flower gardens, it thrives best in soil that is rather open,—one might say one that is the opposite of heavy clay. Though regarded as a spring-blooming plant, it has a fashion of flowering at different times, during the whole season, till the full autumn period has arrived. Though perfectly hardy, it does not like the full blaze of the winter sun,—and thus does better when planted in partial shade, provided the ground is not dried out by the roots of large trees.

THE YELLOW WOOD: CLADRASTIS TINCTORIA.—It is strange that a flowering tree of such marked beauty as the Yellow Wood, *Cladrastis tinctoria*, or *Virgilia lutea*, as it has been erroneously called, remains so uncommon. Possibly the somewhat ungainly growth in youth is accountable for the lack of interest shown in it; and also that it does not seem to seed freely. Young plants in a nursery are invariably passed by as the intended purchaser looks for something pretty for a lawn specimen. But a ten or twenty-year old specimen has quite a different effect. Then one sees a fine, symmetrical, small tree of spreading habit, the ends of the branches almost pendulous, and the whole distinct in character. The leaves are pinnate, but broadly-rounded. In June, drooping racemes of white, pea-shaped flowers are produced in sufficient profusion to look neat and showy without an appearance of over-doing the decoration. These flowers harmonize with the light green leaves and general character, and are very pleasing.

Cladrastis tinctoria is a native of the United States, but is not widely distributed—another cause for its being but little known.

There is but one other species in cultivation, and that is better known as *Maackia Amurensis*. While distinct and rare, and, therefore, desirable in collections, it is not as choice as *C. tinctoria*.

While so near, it is well to recall that *Sophora Japonica* is closely related to our subject, and is also a much neglected plant. Flowering in August, it is not the rival of *Cladrastis* it might otherwise be. This late-flowering character is, of course, much in its favor. The tree itself forms a beautiful rounded outline.

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RHUS OSBECKII.—It is unfortunate, perhaps, that nurserymen feel obliged to list *Rhus Osbeckii* in their catalogues among the well-known species of *Rhus* or sumach, for by so doing it is most frequently overlooked in a search for beautiful ornamental trees.

This Chinese tree is very distinct in general character from our native species, and should be better known. It attains a height of 10 or 12 feet, makes a heavy trunk and spreading top. The branches are well clothed with foliage, which at times colors prettily in autumn, though not equal to the colors of other species.

Flowering in August, or close of July, its desirability is increased, as but few plants flower then. These flowers are whitish, but have been described as unattractive; but produced, as they are, in large terminal panicles against a background of foliage, the effect is exceedingly good.

Some trees do not produce perfect flowers, and are consequently non-seed-bearing. This tends towards making it unplentiful in nurseries and rare in cultivation.

PINUS MANDSHURICA.—Many of the pines planted as lawn specimens are truly ornamental in their character of growth only while comparatively young—the lower branches lose their foliage and the neat, compact habit is lost. *Pinus Mandshurica* is not of this class, and may be considered a sadly neglected species.

Among a number of specimen pines recently observed, the one in question was by far the handsomest. The mixed coloring of the foliage first attracts and pleases the eye; one side of each leaf is dark green and the remainder is a clear, silvery-gray.

Those familiar with *Pinus Cembra* will recognize, in the abundance of foliage, some resemblance to *P. Mandshurica;* they are quite closely related. It is this compact habit, effected by the great amount of foliage, which renders the superiority over others for specimen planting.

Pines, generally, are well-fitted to stand in the bleakest positions, and are, therefore, very useful. Coming from high altitudes in Asia, *P. Mandshurica* is thoroughly hardy. A magnificent specimen stands near Horticultural Hall, Fairmount Park, Philadelphia, and is the picture of health and vigor.

THE HARDY FLOWER GARDEN.

HELIANTHUS RIGIDUS, "MISS MELLISH."—There are very few hardy herbaceous-plant-borders in which the sunflowers are well represented, yet *Helianthus rigidus*, var. "Miss Mellish," has sufficient merit to command a place in every collection. The flowers are a clear bright-yellow, from 3 to 4 inches across, with a chocolate-colored disc, borne on long, stiff stems, so that it is very suitable for cutting. It is a good, strong grower, attaining the height of 6 or 7 feet, and is at its best during August. E. HEMMING.

AMARYLLIS HALLII.—On page 92 of your MONTHLY for last June, E. O. Orpet tells me that my *Amaryllis Hallii* is *Lycoris Squamigera*. It is not my intention to dispute the findings of any one in authority, having purchased many plants under erroneous names; but I can report that, in our most sheltered bed, we have four plants of *Lycoris Squamigera* growing thriftily; and, though set out in the fall of '96, all have refused to bloom until this season. About the first of August, in my absence from home, one of the *Lycoris* sent up a stalk which yielded four *white* blossoms. It is a great grief, to me, not to have seen the flower; but I did see the stalk, with the forming seed-pods, and cut it down with my own hands. The foliage of this *Lycoris* is quite different from the *Amaryllis Hallii*. It is a lighter, brighter green; it develops in a more formal way; and the leaves are entirely without the distinct keel found on the back of the *Hallii* leaf. Moreover, the flower-stalk was developed with the leaves, whereas, the *A. Hallii* loses all its foliage before the bloom-stalks show themselves. The flower is the usual *Amaryllis* shape, but has this peculiarity: at two-thirds of its length, there is a slight contraction in the tube, as if tied around with a string; and then the remaining length opens out rather flatly.

If it is really the right thing to do, we will change the *A. Hallii* label to *Lycoris Squamigera;* but what name shall be given to the four bulbs purchased for *Lycoris?* Suggestions will be gratefully received.

Crown Point, Ind. MRS. F. N. B.

[It must not be forgotten that, when a botanist decides that two supposed species are

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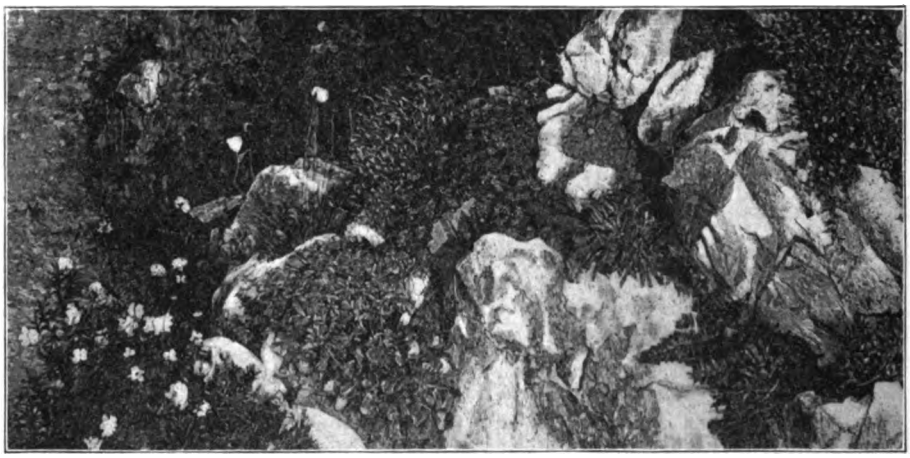
synonymous, he often means that they are not distinct enough to be regarded as separate species, and not that they are exactly the same. The nurseryman or the garden-lover must keep them apart. The customer would never forgive the nurseryman who sent him the Sugar Maple for the Black Maple; or the florist who should send the Compass Plant, *Silphium connatum* for *S. perfoliatum*, though these are regarded as synonyms in botanical works. The conductors have not seen both the bulbs in question, but it seems evident from Mrs. F. N. B.'s account that, whatever botanists may regard them, it is safe to regard them as distinct—for the present at least. They have only *Amaryllis Hallii.*]

of a little bluff of earth, or in some way brought in as if it were either a natural part of the garden ground; or, if its artificial character is to be boldly avowed, seem to be the continuation of a wall, or an incident in some building or other. The annexed scene, from *Gardening Illustrated*, gives a good hint as to what a tasteful rock garden should be. Even the Edelweiss would probably succeed in such a one.

FRUITS AND VEGETABLES.

GOOD CHERRIES FOR EATING.—It seems strange that more cherries are not raised for marketing—sweet cherries for the table. The writer rarely recalls a trip that he made to



A ROCK GARDEN FOR FASTIDIOUS FLOWERS.

ROCK GARDENS.—Complaints are sometimes heard that this or that pretty wild flower will not grow in gardens. It is often said of the Teaberry, the Trailing Arbutus, and the Chimaphila, or Winter-green. But it is not that these innocent little things are obstinately opposed to a civilized life, but because some of the conditions they have been accustomed to have been denied to them. They require help against a burning sun, and not that they must have the umbrageous protection that trees in the woods afford. An ordinary rock garden is received, by these plants, as a full equivalent for the forest. If there are any judicious spots where such a garden can be established, it not only affords facilities for the growth of plants that would not otherwise succeed, but adds beauty to the landscape effects of the garden. The rock garden should be made the terminus

Europe, some years ago, without longing recollections of the luscious cherries so plentiful in the markets there. Throughout Germany and France, no market was without them, and neither was our little party for long at a time. By the pound, the fruit was handled in "cornucopias" of paper, and was dispensed to hosts of passers-by. Excuse for their rarity in market is sometimes offered that the robins get the profits, while the orchardist has the labor for his share. But blackbirds and thrushes are as troublesome in the Old World,—but the cherry-grower finds it pays to enclose the tree in sailor's netting during the fruit-ripening time.

CABBAGE IN WINTER.—Lovers of cabbage may have it served throughout the winter, if the heads be carefully stored. They are earthed-up, similar to turnips and apples, the heads

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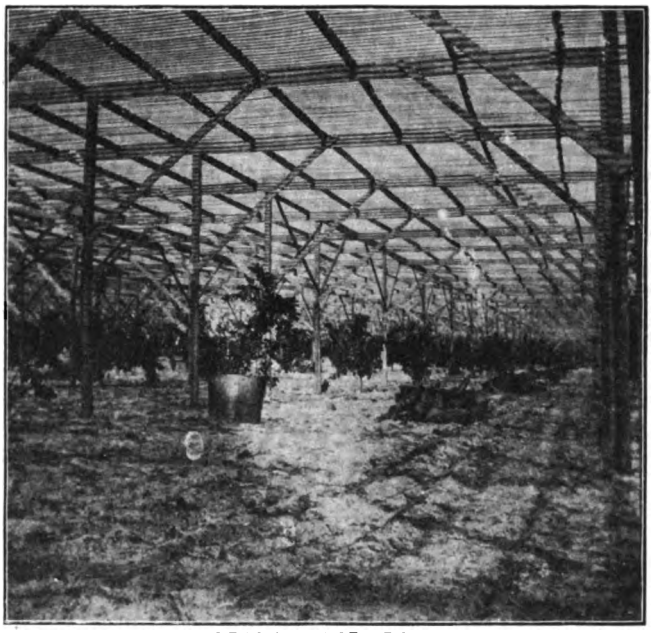
downward. The roots should not be removed when this is done, as the food stored in them continues support to the heads. When the heads are taken up for use, the outer leaves will be found to have spoiled. Occasionally a worm gets among them. If carefully washed, the leaves are not seriously harmed.

PROTECTION FROM FROST. — Referring to orange trees in parts of our territory verging on the frost line, we noted, what practical gardeners well know, that preservation from bright light is a great protection from frost. In regard to orange-culture, building on this valuable experience, MEEHANS' MONTHLY has suggested that, if a light trellis could be erected over an orange orchard, it would be equal to a saving of five or six degrees of frost. Plants that suffer when the temperature about them is at 32°, or the freezing point, are uninjured when under a trellis with the glass at 27° or 28°. We have watched the Florida papers to note experiments in this line, but nothing has appeared. The annexed illustration is, however, something in the trellis line. It is part of an orange orchard owned by Mr. Ives, near Rockledge, Florida. It is so constructed as to receive benefit from fire, as logs of wood are piled up in places, ready for a cold wave.



ORANGE-TREE ARBOR.

We have never pressed our plan of a simple trellis as a full protection, because, though successful, it might be a question as to whether there was profit enough in orange-growing to warrant this frost-defying course; but, if there is a good margin in this Rockledge practice, the other is surely worth trial. About five acres of land are covered by Mr. Ives' arbor.

DWARF SECKEL PEAR TREES. — Fondness for the Seckel Pear amounts almost to a craving with some persons, yet denial is great because of the long time before trees reach bearing. The demand for this fruit is invariably beyond the supply; yet, when a tree does develop, and bear, it does so abundantly. It is important to know that dwarf pear trees bear quickly, and when setting out standards include a few dwarf. It reduces the waiting period.

FRUIT MODELS.—With the large number of fruits named and scattered over the country, it is almost impossible for any one to keep in memory the characteristics of each one,—and yet nurserymen everywhere continually have fruits sent them for name. A correspondent makes the good suggestion that if some one would take in hand the making of plaster casts, properly colored, of all the leading varieties of fruit, there would be sufficient demand for them to make the preparations profitable. There are few nurserymen, he believes, but would be glad to have on hand a dozen or so of the leading varieties of apples and pears, at least. He observes, further, that there is just as much need of these models of fruits as there is of a herbarium to a botanist.

PRUNING.—Probably one of the best tests as to a good knowledge of practical gardening lies in the manner in which the pruning-knife is handled, for the deplorable effects of a lack of this knowledge are seen everywhere. The chief success in fruit-culture comes from the knowledge and the practice of judicious pruning. One has but to look at an ordinary vine-

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yard, and the result of some good gardener's growth of grapes under glass, to see the wide difference between ignorance and knowledge. The good grape-grower under glass will use the pruning-knife so judiciously that the plants will be healthy and productive for a hundred years, bearing fruit as freely and as vigorously from near the roots as at the top of the vine. The grower on the garden trellis, or on the side of a barn or building, finds his vines no good at the end of a few years. The variety he pronounces no good, and he rushes after every new kind to correct the results of his own folly.

One may travel through the length and breadth of the land and not find a case of sound pruning, and, at the same time, notice the weakness and decay in orchards everywhere,—all due to ignorance of pruning. There will be seen many cases where the owners understood this much: that pruning was a necessary part of a good gardening education,—but not knowing anything of causes and results, they have rather hastened than arrested the destruction of their trees.

THE QUALITY OF FRUIT FROM IRRIGATED TREES.—Does irrigation, such as many western State fruit growers are obliged to give, affect the quality of the fruit?

Theoretically treated, though unscientifically, the subject allows of discussion with something to be said both for and against the affirmative.

The greater part of all fruits, popularly termed such, is water. With the water are substances of a more or less palatable nature. Is there not probably a balance in the mixture between the water and the other ingredients, just as in mixing fruit syrups with soda water, the result might be "weak," if the water was in excessive proportion, or too "strong" of flavoring, if the proportions be reversed?

Will a tree take more water into its system than it requires? Perhaps no more than required for the proper support of the tree, but possibly more than the fruit needs to bring its flavor just right in the judgment of man.

The argument against irrigation has supporters with facts, apparently, in which they claim the quality of irrigated fruit, or fruit from irrigated States, is poor, compared with others, and the cause is simply attributed to the irrigation. But possibly this lack of quality is caused by some local condition of climate or soil. Perhaps the "flavoring" components are not as strong, or the quality is affected by the fruit being picked at improper periods. These are points which the scientific investigator along these lines may determine better than the speculative theorist.

PEAR BLIGHT.—One of the misfortunes of discussions is an indefiniteness in the use of terms. The *California Fruit Grower* has a page to note that "Pear Blight" has appeared on the Pacific coast, and that its cause is not yet understood. What is described under the term "Pear Blight" is evidently what was first described and named by Downing as "Frozen Sap Blight,"—but, as the article goes on, the great enemy of the eastern pear-grower —"fire blight"—is evidently mixed up with it.

There is no longer any mystery, as to what is "fire blight," among practical men, though the microscopist does not seem to have caught hold of it. An extremely violent parasitic fungus, that has not been apparently examined by the mycologist, seizes on a point on a branch, and, in the course of a few days, utterly destroys both wood and bark over a space of several inches. Active fermentation ensues, and to such an extent that the strong fermentative odor is readily perceived. This fermentation is carried through the whole portion of the branch above the point of attack with the ascending sap,—and the whole branch putrifies in a few hours. Microscopists have examined the sap in these putrescent branches and leaves, and find a bacterium which they have named *Bacillus amelliorus*, without evidently perceiving the source of the putrescence in the fungus operating at the base. The main point of this paragraph is, however, to urge a more careful use of terms.

TRANSFORMED PEARS.—Last year, Susanna M. Gaskill, of Swarthmore, Pa., sent to the MONTHLY samples of Seckel Pears, that had assumed the sunken stems and general appearance of apples. This year, the fruit presents its normal form as a well-behaved pear,—only two specimens of the apple-like wanderers being found on the whole tree. Grafts from trees that "sport" in this way produce permanent varieties; but the original tree, or branches left on the original trees, are apt to revert if left on their original roots.

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BIOGRAPHY AND LITERATURE.

DEATH AND THE HELIOTROPE.

The Heliotrope is withered now,
  Her godlike sun has set ;
But though death's garlands bind her brow,
  His eyes with tears are wet.

He weeps, he weeps to take the prize
  That love alone has won ;
Though on her bier the maiden lies,
  Her soul is with the sun.

O Death ! the victory is not thine,
  When life for love we give,—
And long as yon bright sun shall shine,
  The Heliotrope will live.

Will live in other hearts to bloom,
  For love can never die,
But sheds on earth its sweet perfume,
  Eternal as the sky.

MARY BAYARD CLARKE.

CITIZENS' PRIVILEGES IN GERMANY.—To the article on city taxes, in your August MONTHLY, I add, from personal experience in Germany, that the salaries of the municipal officers are mostly paid from the income the forests bring by their practical management. There forests are so many centuries in existence, and partly by continuous renewal of the same in planting and sowing new woodlands. Yes, in my native city, I knew that every citizen residing there and owning a house was entitled to a cord of best wood (beech, generally) for firewood for the small cost of what the woodchoppers received ; and there are several other privileges attached to the honor of being a citizen. Every four years a certain amount of coarse rush (*schilf-rohn*, in German) which grows on the borders of lakes and rivers, is also received by a citizen belonging to one of the eight districts, between whom the rush is equally distributed. It is used for the thatching of barns and country houses. Another common privilege is the hay which grows in a large meadow several miles away from the place, but which is measured out in lots, so much belonging to each house owner. There, citizenship is made remunerative in many ways.

Hartford, Conn. MRS. WILHELMINA SELIGER.

FRUIT HARVESTING, STORING, MARKETING.—By F. A. Waugh, New York. Published by the Orange Judd Company. Fruit-culture for profit requires good business ability. One with a good knowledge of fruit-raising, and under the very best conditions for successful fruit-culture, may fail utterly,—while the poor grower with business tact will make money rapidly. Books on orcharding seldom take notice of this fact. The one who can tell what best to do with fruit after it is raised, deserves well of his countrymen. This little book is in a useful direction. It takes up this practical side. It advises how to study the markets, to prepare properly for market,—and deals with many such matters, very suggestive to those who are growing for profit.

WILLIAM T. HARDING.—When the history of American gardening comes to be written, and names are presented to us of those intelligent gardeners who have borne the labors of the day in advancing it to the present honorable stage, few will command more grateful respect than Wm. T. Harding, at this time resting from his labors at Mt. Holly, N. J., though still working in the interest of art and science, as the fingers of advancing years permit him. He was a well-known contributor to the *Gardeners' Monthly* during the thirty years of its continuance. A contribution from Mr. Harding, treated with the broad intelligence of a popular magazine writer, and yet marked by the practical judgment of a successful worker in gardening, was always looked forward to with impatience, and read by all with profit and pleasure, as a master in landscape gardening, Gordon Park, at Cleveland, testifies ; while, for a considerable time, he held the position of landscape gardener to Fairmount Park, in Philadelphia.

He was born at Burton under Needwood, county of Stafford, England, February 13, 1824. His father was a retired naval surgeon, who, like so many of his class in the Old World, was an enthusiastic lover of botany,

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and who was able to communicate an enthusiastic love for the amiable science to his son. This developed into a love of nature in all her charms, and led him into the practical work of gardening. The deep love for flowers led him

WM. T. HARDING.

to Australia, and the many incidents of travel, in that far-away land, before his settlement in America, gave pleasure and profit to hundreds who enjoyed his admirable pictures of that country.

FORESTRY.—The Hon. J. D. Lyman, of Exeter, New Hampshire, has an admirable paper on forestry in the report, for 1900, of the Rhode Island State Board of Agriculture. He starts with the sound definition of forestry, that it is the science and art of growing trees as a crop. As usually understood by those who employ the term in these days, it should be a branch of meteorology.

In this essay, Mr. L. shows that, properly planted, pruned, and cared for as a farm crop should be cared for in intelligent hands, the returns are as profitable as any other crop, to say the least. This has always been the view of the writer of this paragraph. The long period between seedtime and harvest is the chief difficulty in the way, but corporations can overcome this as they can overcome the non-paying dividends of R. R. companies for some years. As for forest fires, there would be none in a well-ordered tree plantation—at least, no more loss than could be as easily covered by insurance as any other property. So far as we know, there have been no attempts at forestry worthy of the name, in America. There have been plantations, and by companies that were practically left to themselves, after being fairly started, with about as much chance for success as a crop of corn or potatoes would have under like conditions.

ANCIENT HISTORY OF THE ROSE.—That the rose was known to the Israelites, and is mentioned in the Old Testament, there can be little doubt. It was probably known to them by the preëminent title *chabalzeleth*, for, although that may have been the general name for a flower, yet, like the Persian *gul*, it may have been applied to the rose as *the* flower—the superlative of the floral world. *Rosa spinosissima* and another species is a native of Palestine; but, as we have no description of the flower in the Old Testament, whether these or some other flower is intended, remains quite uncertain, though some flowers mentioned in its pages are translated into "rose" in our authorized version.

When we descend to later ages, when decriptions of the flower were given, we cannot but be struck by the almost unvarying name of the flower. In Greek it is *Rhodon;* in German, *Rose;* in Dutch, *Roos;* in Danish, *Rose;* in Swedish, *Ros;* in French, *Rose;* in Italian, *Rosa;* in Spanish, *Rosal;* in Portuguese, *Roseira;* in Russian, *Rosa;* in Polish, *Roza;* in Bohemian, *Ruze;* in Sclavonic, *Ruxiza;* in Finnish, *Ruusu;* in Welch, *Rhos;* in Anglo-Saxon, *Rose;* and in Gaelic, *Ros.* Everyone of these seems to be derived from a root-word signifying red or ruddy.

The rose is mentioned by Homer and by Anacreon; by the former in the hymn to Ceres, by the latter in many of his odes, through which we learn that it was a flower remarkable for the beauty of its petals, that it grew amidst thorns, that it had a divine fragrance, was of the color of the human complexion, that it was the most beautiful of all flowers, "the queen of flowers," the "flower of love."—*London Journal of Horticulture.*

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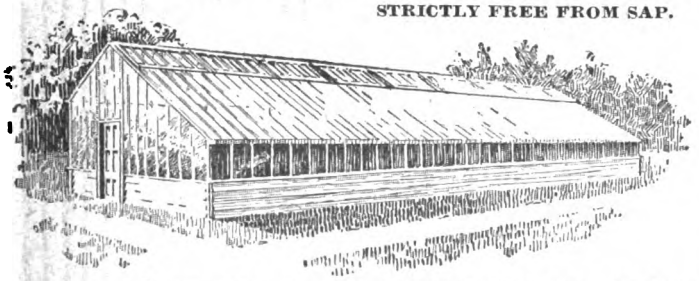

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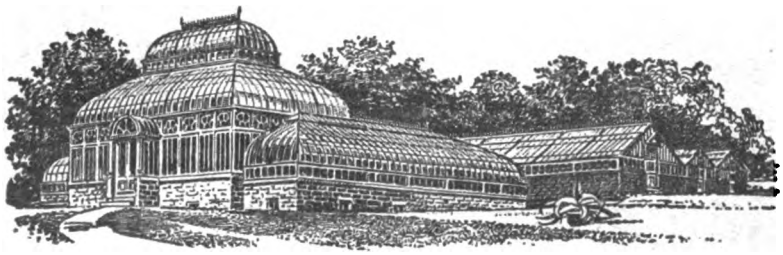

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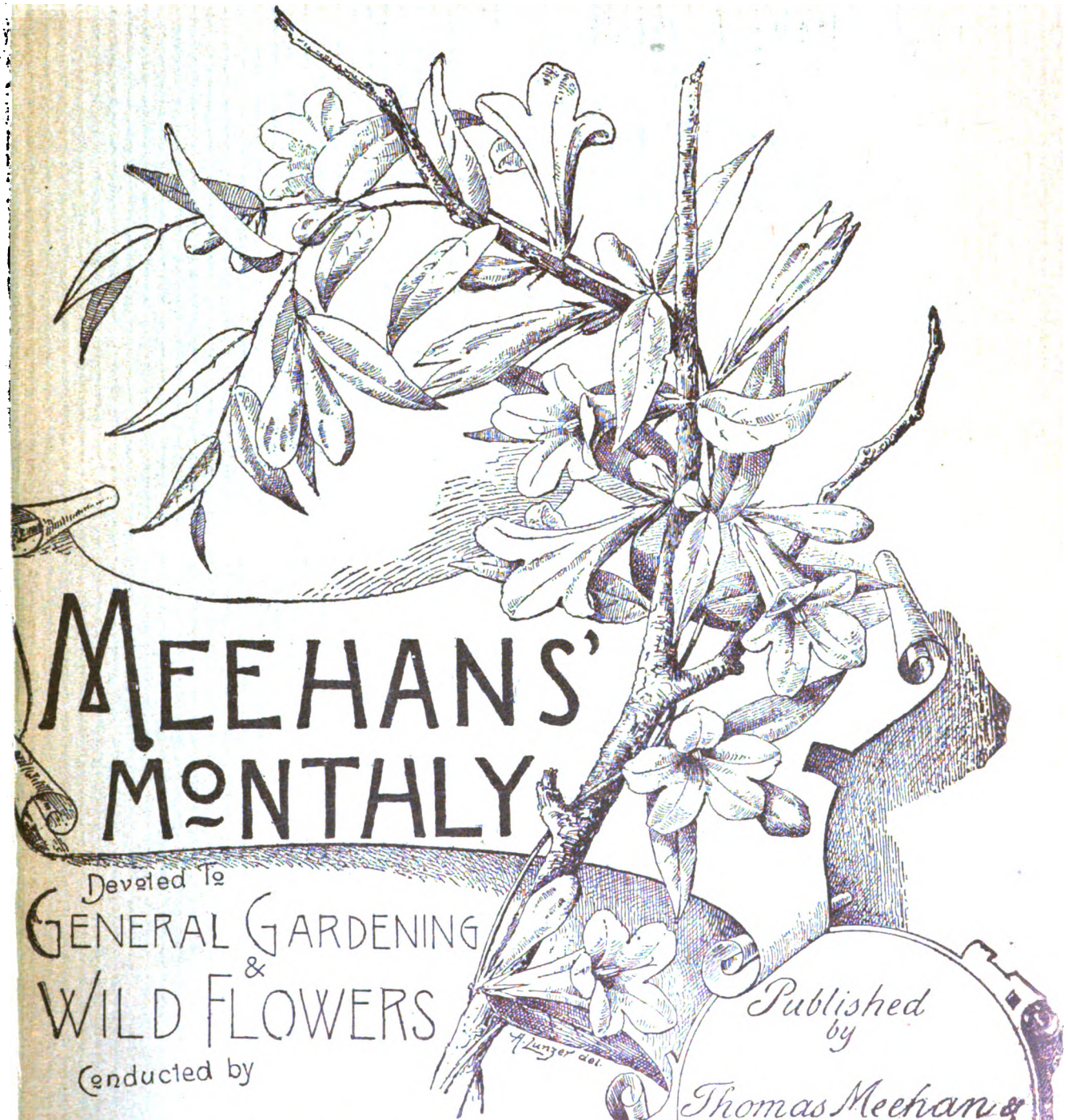

MEEHANS' MONTHLY

Devoted to
GENERAL GARDENING
&
WILD FLOWERS

Conducted by

THOMAS MEEHAN

A. Lunger del.

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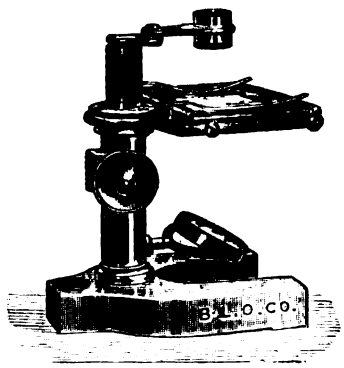

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CYSTOPTERIS BULBIFERA.

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CYSTOPTERIS BULBIFERA.

BLADDER FERN.

NATURAL ORDER, FILICES.

CYSTOPTERIS BULBIFERA, Bernhardi.—Frond lanceolate, elongated (one to two feet long), two pinnate; the pinnæ lanceolate-oblong, pointed, horizontal (one to two inches long), the rachis and pinnæ often bearing bulblets underneath, wingless; pinnules crowded, oblong, obtuse, toothed, or pinnatifid; indusium short, truncate on the free side. (Gray's *Manual of the Botany of the Northern United States.* See, also, Chapman's *Flora of the Southern United States;* Wood's *Class-book of Botany*, as *Cistopteris bulbifera*; and Britton & Brown's *Illustrated Flora of the Northern States and Canada.*)

This delicately beautiful fern is one of the oldest American species known to botanists. It was figured by Jacob Cornuti in a work describing the plants of Canada, published in Paris, in 1635. It is a very good figure, and has been reproduced by Barraleius, and other succeeding authors, as *Filix Bulbifera Cornuti.* He describes it as a fern without flowers, but with fruit, and believes it should be classed with *Polypodium.* This was also Linnæus' view, and it appears in his works as *Polypodium bulbiferum.* The *Polypodium* of Linnæus soon became a vast genus, and, for convenience in botanical studies, had to be divided, and we find it referred, by Michaux, to *Nephrodium*, describing it, in 1803, as *N. bulbiferum*, but remarking that it had the appearance of *Polypodium Filix-Mas.* Pursh, in 1814, published it as *Aspidium bulbiferum.* Pursh followed the *Hortus Kewensis* of Aiton considerably,—and evidently in this case, as it is referred to in that work, published a year previous, as "*Aspidium bulbiferum* of Willdenow, introduced by Mr. John Tradescant, Jr., from Canada, in 1638," three years after its notice by Cornuti. He places it in alliance with *Aspidium Filix-fœmina.* Indeed, as Dr. J. Wilde, who wrote of the ferns of Siberia and Northern Asia in 1867, remarks: "It has been referred to as *Woodsia*, *Aspidium*, and *Asplenium* by various botanists." It was left to John Jacob Bernhardi, a botanist of Erfurt, to show that a separate genus might be made of some of the species by reason of the peculiar bladdery features in the indusium. He gave the name of *Cystopteris* to this group,—the name literally signifying bladder fern. This was published in a small local work, in duodecimo size, in 1806, as Schrader's new series of the *Journal of Botany.* The author endeavors in these chapters to verify facts by reference to the original authors, but has not been able to examine the new series of the little work in which the genus was first described. Judging, however, by a reference to it in Swartz's *Synopsis Filicum*, issued the same year, the original orthography may have been *Cistopteris*, though Swartz himself retains the name of *Polypodium bulbiferum.*

In describing the genus, botanists lay stress on the roundish fruit dots, "borne on the back of a straight fork of the free veins," to quote the words of Dr. Asa Gray. The author of this paper has found considerable variation in this fern. It sometimes approaches *C. fragilis* so closely that by some barren fronds of the latter he was almost of the belief that he had found the *C. bulbifera* in Alaska. In our enlarged drawing, it will be seen that the sori or fruit dots are sessile in the forks of the veins, and different from the figures in Dr. Gray's work quoted, as well as in Britton & Brown's "Illustrated Flora." This does not indicate that these figures are erroneous, but that a veinlet in their specimens had not been developed. The fact is, however, of great importance to those studying the morphology of ferns. It is assumed that the fruit dots are the termini of veins. To bear them on the back of a free vein would be an anomaly unexplainable by any morphological law. Borne, as in our picture, they may still be on terminals of undeveloped veins. In the supposed anomalous cases, it is to be conceived

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that the subtending veinlet has remained wholly undeveloped. It simply illustrates the power of variation in the species.

An interesting circumstance in its history is the comparatively limited area in which the plant is found. The late John H. Redfield, in a letter to the author, dated December 28, 1877, says of it: "*Cystopteris bulbifera* is one of the strictly North American species. I have found no evidence of its existence west of the Missouri River, and its province forms a triangle, of which Newfoundland is the northeast angle, the sources of the Mississippi the northwest angle, and northern Alabama and Georgia the south. Walter would call the genus *Cystea*,—claiming it to be the older name,—but such changes are inconvenient. It is remarkable that, on the American continent, *Aspidium cristatum* seems to occupy about the same ground with *Cystopteris bulbifera*, except that the northwest angle of its province extends as far as Great Slave Lake. Moreover, it also inhabits northern Europe." In modern times, following the belief that new species have continuously appeared on the earth by a change of character in response to a struggle for life and a survival of the fittest, a new branch of botany has been attempted under the name of ecology. This is an endeavor to ascertain what the conditions were that induced the change. The history of our plant will be welcome to the students in this department. We find the closely related *Cystopteris fragilis* invading a great territory that must have taken vast periods of time to travel over, supposing it had an original home centre. For all the varying conditions surrounding it in this great province, no material change of character has been necessary to enable it to hold the field it has conquered. We may assume that it has been under ages innumerable in the condition we find it to-day. The closely-related and much-resembling *Cystopteris bulbifera* is confined to such a very limited area that we may fairly assume that its history is comparatively modern. If it be conceded that, under some law of ecology, it changed from an earlier species, the conditions that led to the change should be apparent. If its parent were *Cystopteris fragilis*, as the older species, there should be much interest in the fact that both are still growing together, and each apparently well fitted to its surroundings. Both seem most at home when growing in moist places under the shade of overhanging rocks. At times it is thinly scattered over the territory it occupies, as, for instance, along the Wissahickon, near Philadelphia. In the *Botanical Gazette* for 1875, a great lover of ferns, Mr. A. H. Young, of Hanover, Ind., notes that, in that section, "It is abundant in all the woods and about all the moist rocks. It appears in fruit in early summer, and keeps its beauty late into the fall." Williamson, in his delightful treatise on the ferns of Kentucky, says of it: "The plant has the same general appearance as the *Cystopteris fragilis*, with much longer, lanceolate fronds, often two feet in length, with lance-oblong pinnæ. The stem is so frail and delicate that it seldom supports the plant in an upright position, but allows it to bend over on rocks or the surrounding vegetation. It is not so common in Kentucky as the preceding species; but it is found in numerous localities, on the cliffs of the Kentucky River, and notably at Rock Springs, in Oldham County, where it grows in moist situations in greatest luxuriance. It is a very tender fern, withering at the first touch of frost, and difficult to cultivate."

Our plant has found no place in polite literature that is not common to all. Howard Worcester Gilbert describes a scene wherein

"——An oak grew near—
Its fretted roots
Embossed the bank, and on their ruffled bark
Grew plants which love the moisture and the shade,—
Short ferns and longer leaves of wrinkled green."

—And our fern might have been one of the elements in the make-up of the pretty picture. Writers on emblematic flowers have dedicated the fern to "fascination,"—but little has been made of the idea in a positive form. It may be there has been some uncanny legend connected with it in a fascinative sort of way, as Mr. Field reports they are known in some parts of England as "devil bushes,"—but this would hardly apply to species allied to the associates of this innocent-looking species.

EXPLANATION OF THE PLATE:—1. A complete plant, with root-stock, frond and bulblet, from damp rocks along the Wissahickon, near Philadelphia. 2. Bulblets. 3. Pinnule magnified, showing the presence of secondary veinlets. 4. Magnified pinnule, showing the sori enclosed by the bladdery indusium seated in the axil of the secondary veins.

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WILD FLOWERS AND NATURE.

LOVELY MOON.

How lovely is the landscape! Morning peeps
Behind yon leafy mountain, and her eye
Looks over a fresh, green world that calmly sleeps
In the sweet cradle of its infancy;
And, clustering 'round the rocky summits, fly
Light mists, now painted in the rich array
Of Heaven's majestic spectrum, which on high
Spans the dark tempest, as it steals away,
And westward glows in pomp the golden eye of day.

PERCIVAL.

THE FRAGRANCE OF FLOWERS.—A little child, just four years old, seeing a Japanese lily in my hand, said: "It smells like candy, where is the sweet?" Sure enough,—where is the sweetness of flowers? Mrs. Somerville, in her "Molecular and Microscopic Science," published in 1869, says: "Sugar is almost as universal a constituent of the higher classes of plants as cellulose and starch, etc." Does the sugar give the sweet odor?

Chambers' Encyclopædia says: "The nature of odorous emanations is so little known that it is impossible to give a definite account of the mode in which they produce sensory impressions." Must, then, the query of a little child remain unanswered, or can Prof. Meehan enlighten us? He has certainly much communion with Nature, and she may have divulged the secret to him and not to another.

The foregoing was written some time ago, but I send it notwithstanding the Senior Editor's note appended to "Nectar of flowers according to the soil," namely, that "the odors of flowers are in the main derived from the nectar secretions. . . And the odors of flowers vary with the different periods of the day."

San Diego, MRS. E. E. ORCUTT.

DEVELOPMENT OF FERNS FROM BULBLETS. CYSTOPTERIS.—The subject of *Cystopteris bulbifera*, which is used as the leading article with the colored plate in this number, is capable of enlargement in many interesting ways. The ability to form bulblets is a striking feature of the species, though other ferns have a viviparous habit. Indeed, it is believed that many fern plants originate from microscopic bulblets that appear on the prothallus,—as the small membrane that characterizes the original spore-germination is called. What is known as the seed in flowering plants occurs after fertilization. In ferns, the spore is little more than a bud. It unfolds when the condition favors, and becomes a thin, green blade, on the surface of which appear small vesicles, some representing the pollen cases, and some the pistils of flowering plants. At maturity, the pollen, as one may term it, is ejected and falls into the archegonia, thus securing fertilization. It is on this membrane that little bulblets, at times, are formed, and the plant succession secured without sexual arrangement, just as in the case of the frond-bulblets that give the name to our species. In many instances, the plants do not produce them; and in others, only a very few are found.

EVERGREEN FERNS.—It is at this season the beauty of the evergreen ferns is best appreciated. Not a particle of green gives way to a fall or winter shade, and the fronds remain fresh and bright through all the snows of winter. The writer has frequently enjoyed the Christmas Fern, *Aspidium acrostichoides*, under such conditions. It is plentiful along the rocky banks of the Wissahickon Creek, Fairmount Park Philadelphia. *Aspidium marginale* is a good evergreen, but the green color is not so shining.

NARROW-LEAVED MOUNTAIN LAUREL.—The broad leaf of the Mountain Laurel is so well known from its use for festooning at the Christmas holidays it has become well fixed in the public mind, and the narrow-leaved species is but little known. The latter is *Kalmia angustifolia*. It differs in flower as well; they are smaller and darker in color, while more abundant.

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GENERAL GARDENING.

THE HUSBANDMAN.

Buoyed up by every hope that animates
The human breast, he stands erect and firm,
Amidst the fertile empire of his fields.

Behold him as he treads the loamy soil,
With independence such as kings might crave;
The dawn to sound his reveille;
The dusk to bring him peaceful rest;
His only lords the changing seasons as they
come and go. MARKHAM.

A QUESTION TO THE READERS.—What flowering plant or plants have you found best suited to ordinary house-culture? Your suggestions and experience briefly told will be helpful to many.

What foliage plants succeed best in your hands indoors?

SUCCESSFUL PLANT-CULTURE IN WINDOWS.—Why is it that some persons have no success whatever in raising plants in the dwelling, while others keep their windows well filled with beautiful plants, robust and thrifty, flowering profusely and evidently very much "at home"?

This is a question often asked, and frequently with envious feelings, by those who love flowers but have not been very successful with them. The wise reply is usually evasive. What answer can be given other than in a general way? Some will say, "You give them too much care; you annoy them so they cannot grow and give results. My plants are much-abused and shamefully neglected, at times, and yet they are looking well and happy."

Plants must be treated as individuals; no two can be handled in exactly the same manner. A physician in charge of a hospital would not give the same manner of attention to each patient; neither would he give one examination to a case and then give an unvarying prescription for all time. He has, first of all, a fundamental knowledge of treatments that may be given certain cases; then, when he treats the individual, the needs are made a study and continued observation from day to day. There is no occasion for annoyance or hindrance in this daily oversight and attention—rather, it is intelligent care that leads to better conditions, and, to a degree, less dependence on some one.

In like manner, we must first know the probable needs of our plants—then give regular care and exercise judgment in maintaining certain treatment or suspending it for something better suited to the immediate requirements.

The condition of the soil in the pots is of first importance. Plants of a succulent nature or with fleshy roots will usually object to real heavy soil; others may find unsuited conditions in an extremely light, porous soil. Where doubt enters the mind, be safe and adopt a medium grade of soil—loamy and porous.

Naturally, heavy soil is slow to take up moisture as well as slow in yielding it. Water poured on the surface of such finds slow entrance and slow passage—the soil in the bottom of a pot will rarely get any moisture, though mostly needed there, unless it be given by standing it for a few moments in a saucer of water. Such soil becomes sodden and sour, and will likely be over-watered in the upper part.

The extreme of this state,—light, sandy soil,—of course takes water at once, and it almost as quickly passes off. In a warm room, the moisture will evaporate so quickly as to require watering twice a day, and each time a thorough soaking.

Medium-light soil is seen to be the safest. Let it be just so that the water will enter at once and dampen the soil throughout the pot without running off.

Plants in jardinieres sometimes suffer by having water standing in the latter—they are literally drowned. On the other hand, if the plant is growing—especially rapid growth—or flowering, an abundance of water is required, and what would ordinarily be an over-supply is then of great benefit.

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Light and air are of very great importance; plants should have both every day. Of course, it is to be supposed they are all placed where light will be had abundantly each day; but this light must be distributed equitably. This is accomplished by turning the plants around, exposing them to the light on all sides.

Some plants require more heat than others—especially when growing and receiving considerable water. Plants practically dormant may be kept cool and without much water and light.

But few persons realize what a small amount of soil is made to support a plant, and how inadequate the nourishment must frequently be. Food of some kind should be occasionally added to the soil. Manure in liquid form will aid strong growth—a few drops of household ammonia frequently added to water is a good practice. Potash, present in wood ashes or bone meal, will sometimes be acceptable.

So-called plant-foods are now largely manufactured for convenient use, but that they are better than the above-mentioned forms is open for decision.

Plants in a very hot room sometimes suffer from a dry atmosphere, and the leaves should be lightly syringed occasionally.

Dead or dying leaves on a plant are useless encumbrances, and should be removed and destroyed as soon as they appear. While often these are simply the natural fall and end of the leaf's functions, as a rule it indicates some irregular condition, as too low temperature, too little light or air, or improper watering.

These are the main things to be borne in mind and the conditions supplied carefully. When experience enables one to see conditions quickly and to foresee results, watchfulness and care are less required, and the stage of apparent carelessness attributed by the quotation in the early paragraphs of this article is reached.

WEEPING BEECH.—In MEEHANS' MONTHLY for October, 1901, a large, old, specimen Weeping Beech was illustrated. To show the plant in a younger stage and a more common form, we herewith illustrate a specimen on the lawn of the late Thomas C. Price, Chestnut Hill, Philadelphia. As we look upon the angular yet fine, rugged form, it is likely to cause wonder why any tree should take on such a peculiar form. Aside from any possible physical reason, nature teaches that we must have variety, or life would be an endless monotony. And any singular growth may be looked upon as part of Nature's plan to avoid such monotony and to reveal the fact that everything has its use on the earth. The Weeping Beech, odd though it is, is highly valued for special landscape uses, and in this light is to be greatly admired.

WEEPING BEECH.

ARRANGEMENT OF PLANTS IN CONSERVATORIES.—When arranging a miscellaneous collection of plants in a conservatory, one is confronted with problems not easily overcome, and the greatest of these is to arrange the plants so that those requiring greater heat than others may obtain it without detriment

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to others having quite opposite preference; or where copious watering may be given to some, and others kept somewhat dry.

The possessor of a "range" of glass can devote certain houses to plants having similar requirements; but the "one-house" owner must needs exercise considerable judgment and ingenuity to overcome the difficulties that confront him.

By careful testing, with aid of several thermometers, it will be found that certain positions in the conservatory will vary a little in the degree of heat—perhaps just sufficient to meet the requirements of some particular plants. If there are certain places reached by the sun for a longer period during the day, or where the glass is least exposed to strong winds, warmth-loving plants will be best suited.

Shade-loving plants may often be located where the spreading leaves of a large palm or other plant will give shelter from the sun's rays.

Cacti and some related succulents are usually kept very cool and almost dry in winter, and allowed to put all their energies into growth during the summer. This is, however, often inconvenient, and they are permitted to grow the year round. In any event, they should have a limited supply of water, and it may not be wise to let them have a constant watering with the other plants. For this reason, as well as for a harmonious appearance, keep them somewhat apart from the others. They will form an interesting group. Interest in a group of cacti is enhanced, by the way, by a good variety in forms. The "Old-man" Cereus, the Rat-tail and Crab-cacti, the triangular-stemmed and night-blooming Cereus, species of *Mammillaria* and globular forms with gaily-colored and long, curved spines, all make good selections and differ widely. *Euphorbia splendens* should not be omitted.

Begonias, with their leaves in many forms and markings, look well grouped near each other, and will be glad of a little special attention the separation will afford.

Large tubs and pots may be concealed from general view by smaller pots placed before them; or the pretty Selaginellas may be allowed to spread around them and make pretty covers of green.

Do not put palms in corners where you cannot examine their leaves carefully and frequently. Attacks from scale will be rebuffed by watchful attention.

Air-plants like to be where they will receive the full benefit of a moist atmosphere.

The details of arrangement must be left to the one who has the actual arranging of a house. His artistic skill must be brought into play, when he will make the general appearances as informal as possible and permanent-looking.

SCALE ON PALMS.—It is not advisable to delay cleaning scales from palms. They are insignificant-looking creatures, and it is an easy matter to be unmindful of the damage to a plant they can do in a small space of time. The nature of a scale is not known to every one. It is an insect covered by a scale protection, and it feeds on the juices of the plant to which it attaches. As its work continues, the vitality of the plant is quickly sapped before one is well aware of it. The increase of these insects is enormous, each female producing hundreds and thousands in a year. Therefore, be watchful and prompt in checking its progress. It is much better to spend a few hours cleaning away a few scales from a healthy plant every few days than to spend a whole day on a sickly plant once a month.

SIMPLICITY IN TABLE DECORATIONS.—Elaborate and expensive floral centrepieces are not necessarily the most beautiful. Simplicity often rules the worlds of art and nature. Who would consider as beautiful, at first thought, a few sprays of the leafy growth of the garden Asparagus together in a small vase with a like number of golden Coreopsis? The effect is charming if the vase also be simple. This should be remembered, that a vase of flowers is intended to display the beauty of the flowers and not man's handiwork in molding or coloring the vase.

The umbels of white flowers of the wild carrot are very pretty in vase decorations, yet how few persons would think of gathering them for that purpose!

While it is a benefaction to man to have at command, for use and proper enjoyment, all the beautiful things possible, it is foolishness to trample aside a host of pleasing things,

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merely to strive for the elusive and unattainable or imaginary beauties. The writer does not lack praise for rare beauties, but rather deplores the tendency to look over and beyond Nature's abundance in the fields and along waysides.

Did you never pull a flower of the wild carrot? The tenacious fibre of the stem requires a pull. Never smell of its peculiar fragrance—if fragrance it may be termed? Note the odd, concave form of the umbel,—like a good-sized butter-plate.

There is much in Nature for us to learn and appreciate, and in our observations we come to know her better, we learn to love her, and that feeling will embrace our fellow-men. Let us, then, bring her simplest charms to our hearts and homes, without fear of missing something more rare and more beautiful beyond.

LOPPING CITY TREES.—It has been supposed that only American cities present painful exhibitions of decapitated trees; but the London *Journal of Horticulture* says: "The extent to which large trees, such as limes, Acacias, poplars, are lopped and cut in the winter time until they appear like contorted broom-sticks attached to a growing trunk or stem, is a matter of great regret. Fancy an avenue of such trees, three or four, perhaps, before each villa residence in a fashionable thoroughfare, and also in private gardens. Lime trees seem to be badly used in this respect. Why should trees be planted thickly in a town street and every one unmercifully pruned back each winter, leaving six or eight twisted stems with gnarled and knotty excrescences upon them, caused by the constant pruning to one point?"

After all, there is something to be said on both sides of this question. The linden, locust and poplar—the kinds noted in this paragraph—grow too large for sidewalks, as do the Silver Maples, poplars and planes in American cities. But a beautiful tree is not always the object of the planter. The building operator desires something that will soon make his property valuable,—and the individual owner desires rapid shade. In time, the rapid grower has grown too tall, and there is nothing left to do but to cut it back. We may tell the owner that these beheaded trees look ugly,—that cutting back of large limbs, as he cuts, leads to a rotten, hollow tree in a short time, and he may as well cut it away at once and plant a new one: but he acts on the idea that he must consult the living present and let the future take care of itself. There are numerous broad-headed trees — of the horse-chestnut type, for instance — that few would ever think of lopping. If only city street planters could be brought to believe that these somewhat slower-growing trees were preferable to the more rapid growers, we should hear very little about the barbarous practices of the tree-butchers.

ROOTING AN OLEANDER TWIG.—It will be found an interesting thing, at least, to root an oleander in a bottle or glass of water. Simply take a short twig, such as a flowering shoot that may have been broken, and put it in fresh water. The stem should be smoothly cut—not broken. Add water to the bottle as it evaporates, and it will soon commence to issue roots. When these are about three-fourths of an inch long, the slips may be planted in a pot.

The oleander makes a strong growth in the house, and requires quite a little water.

OXALIS BULBS.—The various *Oxalis* are nice plants of easy culture in pots. They occupy but little room, and they bloom freely. There are pink, white and yellow-flowered kinds; some have larger flowers than others, but all are pretty and pleasing. It is best to put several in one pot, as the bulbs are quite small. The native *Oxalis violacea* has a pretty little pink flower, and can be cultivated; *Oxalis acetosella* is known by many as the Shamrock of Ireland.

NEW OR RARE PLANTS.

PINUS MANDSHURICA.—The illustration on next page of *Pinus Mandshurica* shows the beautiful, compact form described in MEEHANS' MONTHLY for November. Unfortunately, the beautiful silver and green colors of the foliage cannot be reproduced. This specimen is situated in the evergreen group near Horticultural Hall, Fairmount Park, Philadelphia, where a number of beautiful specimens of many kinds may be seen. Other fine, rare specimens are a golden pine, *Picea nobilis glauca*, Sargent's Weeping Hemlock and *Pinus cembra*.

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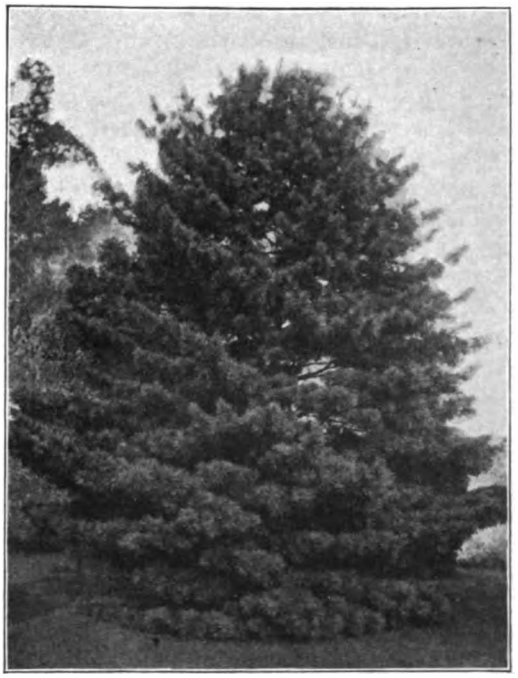
THE HARDY FLOWER GARDEN.

HARDY POMPON CHRYSANTHEMUMS.—Since the craze for the very large chrysanthemums is gradually dying out, more attention is being paid to the other sections of this beautiful family of flowering plants, such as the quilled, anemone-flowered and pompons. The last-mentioned are invaluable for the hardy borders, flowering as they do so late in the fall, when all other plants are retiring for the winter, with perhaps the exception of *Aster Tataricus*, *Helianthus Maximiliani* and a few stray blooms that have lingered beyond their time. The coloring of these autumn beauties has a peculiar fitness for the time of year; the bright yellows, bronzes, reds, dull pinks, and white blend beautifully with the autumn leaves, and give the hardy flower garden a charm that no lover of nature can afford to miss, lasting, as they do, in a favorable fall, right through the Indian summer.



PINUS MANDSHURICA. (SEE PAGE 183.)

Besides, being hardy, there are few plants that will thrive with less attention. They seem very indifferent to location, growing very readily in almost any garden soil, and are almost exempt from fungus diseases and other garden pests, with perhaps the exception of black and green aphis on the young shoots. These can be destroyed by an occasional syringing with tobacco water, applied about the strength of weak coffee.

They increase very readily by division or cuttings in spring; but being such a late flowering plant, are apt to be overlooked in the spring rush.

Plants grown from cuttings are much more thrifty than those by division, and, if struck in April or May, make good-sized plants by the fall, producing a wealth of bloom. E. H.

ROSE SOLEIL D'OR (GOLDEN SUN).—Messrs. John Charlton & Sons are prominent in the dissemination of this new French rose, which is described as especially hardy. The flowers are of an orange-yellow, tinted at the apex with lavender-pink. Though the list of roses is large, this promises to be a popular addition. It has been awarded medals of honor in many parts of the continent of Europe.

LIATRIS SCARIOSA.—All species of *Liatris* are attractive, more or less, and are much sought by planters. *L. pycnostachya* seems most in favor; but *L. scariosa* is perhaps more deserving. The spikes are as long as the former, and the flower-heads are larger, being the size of medium-large buttons. The concentrated color in the larger heads gives a more brilliant appearance.

Unfortunately, *Liatris* are quite subject to disease in some sections, making them somewhat unsatisfactory after a few years.

FRUITS AND VEGETABLES.

PEACHES IN CONNECTICUT.—The peach crop is reported as having been the most successful ever experienced in Connecticut. In size, quantity, quality, and healthfulness of the trees there was nothing left to be desired.

THE LOUIS GAUTHIER STRAWBERRY.—The Louis Gauthier Strawberry blossoms have the perfume of the *Chimaphila maculata*, in the early dewey mornings. This plant is worth cultivating among the flower plants in the borders of the garden. It is totally unlike all other strawberry plants that I have ever met with. It is an aristocrat, a prince among strawberries, handsome and refined; its foliage is clean-cut and beautiful; its trusses of blos-

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soms are on manly and vigorous stems. It has perfect stamens and pistils in the same flower, and the bloom is as handsome as a rose. I am anxious to see its great, luscious fruit bending down those vigorous peduncles—fruit so large that I will have to use a knife and fork to dismember them or bite out pieces small enough to chew comfortably. A sweet berry, as this berry is said to be, will be very desirable, even if it is neither purple nor scarlet. Its pink and white berry will be ranked among the high-toned people of the world. Pink and white things stand high. There is no degeneracy here.

Festus, Missouri. F. K. STEELE.

CHICORY.—The Chicory, *Cichorium Intybus*, is now very common as a wayside flower in many parts of the United States. It was introduced from Europe in the days when the cheap coffee-mills were unknown, in order that its dried and powdered roots might be used to mix with ground coffee as sold in the provision stores; and it has escaped from cultivation, wherein, indeed, it is found no more. It is not generally known that a variety, under the name of Witloof, has become very popular as a salad and all-round vegetable on the continent of Europe. Its neighbor, the Endive, *Cichorium Endiva* of botanists, is well known on our tables, more, however, as a garnish than as something to eat. The samples are usually too bitter. To blanch them properly, flat boards or tiles should be placed over the whole plant, when nearly large enough for use. Witloof is a very strong-growing kind of chicory, in which the midrib of the leaf has become very broad and succulent, and curves inwardly so as to make a long, drawn-out head, similar to the class of salad plants known as the Cos Lettuce. The plant is grown in large quantities in Belgium, and is imported freely into the English markets. The London *Gardening Illustrated* wonders why English market-gardeners have not taken to the growing of it for profit. The plants are raised from seed, and then transplanted, being set deep in the ground, from which they shoot up like a head of asparagus, blanched, and ready for use. Messrs. Vilmorin say it is not only used as a salad, but is cooked in various ways.

WITLOOF, OR CABBAGE-HEADED CHICORY.

WINTER ORCHARD WORK.—It must not be thought that with the gathering and disposition of the fruit, the orchard needs no particular attention before next summer. Take advantage of the slackening of other out-door work, and study the needs of the trees.

The difference between fruit from well-cared-for trees and neglected ones is as great, comparatively, as between an unhoed truck-patch and a clean one. Winter work includes attacks on insects, fertilizing, pruning and cultivating.

Perhaps the greatest obstruction to the production of good fruit is the destructive work of insects. Most of the worst of these are in a dormant or pupal state in winter and can easily be destroyed if they be gathered. Their cocoons are hid under the loose bark of trees, on sticks and any refuse lying about. The ground should be raked over, decayed fruit and all refuse gathered into a pile and burned, the ashes spread over the ground. Search carefully for the cocoons on the trees and any permanent thing about the orchard. The loose bark on the trees may be *scraped* off (don't cut into sound bark, as an ignorant gardener was found to have done), and this will disclose many cocoons.

Scale insects are more difficult to reach. If the trees be very badly infested, and it is desired to save them, prune them in very closely, burn the wood pruned away, and treat the trunk and few remaining limbs. Whitewashing the entire tree is the oldest remedy. The lime will gradually flake off and carry scales with it, cleaning the bark thoroughly. Two applications during the winter will be advisable to catch something that may have escaped the first painting. Lime is a general purifier, and will be helpful to the trees in more ways than one.

The most approved method for ridding trees of scale is by spraying some oily solution over them, but the difficulty is in reaching every part of each tree's surface. If the tree be cut back as suggested, the difficulty is lessened.

The finer the spray, the better the surface

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will be covered. Thick, greasy substances have been used in spraying as well as linseed and coal oils. Injury has been done trees by their use in summer, but there is little or no risk in winter when they are dormant.

Among various scale insects, the San Jose scale is considered most alarming, and this is due to the enormous rapidity with which it increases, one female alone producing a big army in one season. The Scurfy Bark Louse and Oyster Shell Bark Louse are bad enough to make it desirable to keep down their increase. The same treatment applies to all.

Fertilizing is at times undesirable before late winter. If stable manure be used, it may be hauled to the ground in mid-winter and allowed to decay and soak into the soil. This is well accomplished by the time the roots are in need of the food in early spring. Stable manure is the best fertilizer where it is desired to encourage growth of wood. It is also good as a mulch for the protection of surface roots which are generally plentiful with old trees.

Potash in wood-ashes is considered especially good for fruiting trees. Apply in late winter or in spring. Many orchardists alternate between barnyard manure and wood-ashes, or commercial fertilizers of some kind. This is a good practice.

Pruning should be done in winter, where it is necessary to prune away large limbs. The trees may need branches thinned out to give an abundance of light and air amongst the branches—they cannot have too much. A low spreading habit should be encouraged for exposure of as great a surface to the light as possible. If the trees are spreading close to each other, don't be afraid to cut out alternate ones where necessary. It will give additional value and longer life to the remaining ones.

Cultivating can be done to advantage in winter. Surface soil should be stirred and made fine to admit air and moisture readily in the growing season. Summer cultivation must necessarily be rather shallow for fear of disturbing the young feeding roots, which are rather near the surface. This danger is not present in winter, and it is a good time to break up the soil deeply. The surface may first have its coating of manure and then be turned lightly under. It need not be harrowed smooth—the rains and frost will do that to perfection.

When weather will not permit of outside work, get the spraying apparatus in order, and the formulas ready for early work in spring. Get ahead of the Codling Moth. If you propose setting out more trees, plan it out on paper, deciding exactly what you will plant and what space each should have. Large-growing trees, like apples, are often given 36 feet square. Other kinds are given less, down to 18 feet. It is safest to err in giving them too much. The holes may even be dug and manure placed in them to become well incorporated with the soil. Spring planting is usually accompanied by considerable haste, because of other work at that time, and it is advisable to be in readiness.

SAN JOSE SCALE.—"Garden Notes," in the Hartford *Daily Times*, notes the existence of San Jose scale on Hazel plants. It is unreasonable to suppose that this insect will confine itself to nursery trees. The Hazel is a wild as well as a cultivated plant,—and, besides, there are wild as well as cultivated fruit trees. All the laws in the land will not prevent its spread. The only security is for the garden manager to watch for the first appearance and destroy it before it spreads. It is necessary to work as regularly against the spread of insects as against the spread of weeds.

APPLE, NEWTOWN PIPPIN.—Once upon a time, he who had an orchard of Newtown Pippin Apples in the east had the envy of his brethren. It was a first-class apple in every respect, and a very profitable one to grow. For some reason, the story traveled that it was "no good any more." But the Californians find a bonanza in it. There are many hundreds of acres of this variety in the State, and it is all that the successful apple-raiser desires in a successful kind.

BEN DAVIS AND YORK IMPERIAL APPLES.—As a profitable market apple, there is quite a contest between the York Imperial and Ben Davis, as to which shall produce the best returns,—but their merits are so nearly equal that both kinds are being largely planted. The York Imperial affords a better grade of apple for eating, but is not quite so productive as Ben Davis.

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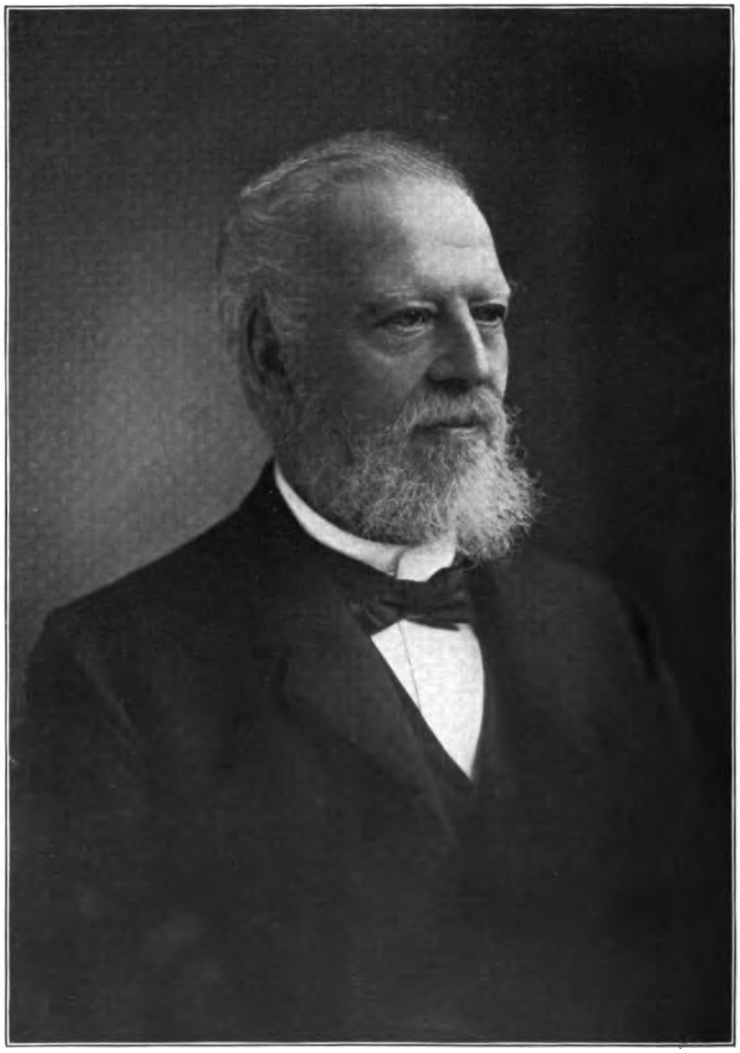

THOMAS MEEHAN

PHOTO BY GUTEKUNST

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BIOGRAPHY AND LITERATURE.

THOMAS MEEHAN.—As we go to press we are called upon to chronicle the death of the Senior Conductor of MEEHANS' MONTHLY, Thomas Meehan. He passed away, after a lingering illness, on November 19th. It is considered a fitting close to his work to reproduce in this issue his best likeness, photographed but a few months before his death. The January issue will contain a brief sketch of his life.

THE PARK OF WEIMAR,—THE ELYSIUM OF GOETHE.—It is by all means a most gratifying encouragement to the editor and correspondent of a journal when occasionally, out of the ranks of their readers, bursts forth the voice of approval and pleasure. This was the case after the appearance of the article treating "The Park of Belvedere and its connections with Goethe's botanical studies," in last April's issue of MEEHANS' MONTHLY, and this has induced your correspondent to introduce the poet and philosopher, Goethe, as landscape gardener,—or, if it pleases you more,—as landscape architect. In order to do so, we are again to journey towards the forest-crowned mountain-ridges of song and mirth-loving Thuringia. Here we find situated, on the somewhat elevated banks of the river Ilm, the city of Weimar. Like many others of the smaller residences of the various German principalities, Weimar would be nothing more than a quiet town, with the imposing castle of the ruler and three churches as the most prominent edifices, around which, over an area of a square mile or two, the more modest dwellings of the townspeople nestle; but, for centuries past, the House of Saxe Weimar Eisenach has made this place the traditional home of art and science. To Germany and far beyond her borders, the "classic Ilm-Athens" is well known. It has been the homestead of eminent poets; it boasts of its famous school of fine arts; within the walls of the old venerable theatre—"the temple of the Muses"—Richard Wagner and Franz Liszt wielded the baton; yet, of all the radiant stars of intellect and the masters of art which Weimar has harbored, the genius of Goethe shines brightest. And however, in keeping pace with the time, her countenance may have changed, she remains in reality to-day still the Weimar of Goethe,—the Mecca of the students of his philosophy, endeared to his many admirers. But, being bound for the park, we leave aside the Goethe and Schiller archives and all the many other places where the German worships his great sons, and hasten amid the virid vegetation to the southeast of the city.

If poets, as a rule, love free nature, then Goethe was, indeed, no exception; but, to his powerful ingenuity, a mere admiration of that which existed did not afford the desired gratification. Gifted with a vivid inclination for the joyous life amid a free and verdant vegetation and a marvelous activity, he naturally became at first interested in gardening, and at last turned out a landscape architect of the highest order. Taking into consideration that, at the time Goethe appeared in Weimar, the present free, natural style was very little known, the gardens and parks of continental Europe being still generally forced into the straight-jacket of the French and Italian forms, his work becomes, to a certain degree, reformatory for Germany.

On the 21st of April, 1776, he took possession of the little garden-house which his noble friend Duke Karl August had provided for him (see illustration, page 14, vol. 11), and, on the 20th of May of the same year, he wrote in his diary, "The work of the lower section has begun," thereby alluding to the remodeling of his own little garden. There he personally was busy planting trees, which doing he accompanied with the reflective wish:

"Wachsed wie aus meinem Herzen,
Treibet in die Luft hinein,
Denn ich grub viel Freud und Schmerzen
Unter eure Wurzeln ein."

As a model of an English garden, Woerlitz, the summer residence of the Duke of Anhalt Dessau, was known, and it was here where

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Goethe and Karl August, while on a visit, in December, 1776, resolved to beautify the vicinity of Weimar by "a series of æsthetic pictures." With the usual energy, soon after their return, preparatory steps were taken. The location where their plans were to be realized was a wooded, wild, secluded section along the sloping river banks, opposite Goethe's garden-house. Here "the new poemata," as Wieland styled it, arose. The work was in progress from early spring on, and in its course had brought forth a number of charming scenes conspicuous by some huge rocks laid bare by the shovels of the laborers; a second visit of the Duke and Goethe in Woerlitz, during May, offered new inspirations. His tour through this park, now in full spring attire, the young poet compares to the gentle passing by of a fairy dream; and in the evening, as he wandered through the groves along the charming lakes, he wondered how the gods could permit the happy owner to bring to realization what appeared to him a fair vision.

Immediately after returning to Weimar, Goethe was seen down along the Ilm amid his rocky creation. Wieland met him there with Corona Schroeter; the latter, by her noble, classic figure and her elegance, seemed the very personification of a wood-nymph. However, the month of July had in store another event, which proved of great importance, and, in fact, was destined to give the impulse to Goethe's further park poems. The court intended to celebrate the anniversary of the ruling Duchess Louisa's saint, and, secretly, preparations were made to have the festival come off at the Stern, a portion of the old park not far from Goethe's garden-house. But heavy rains and storms overflooded this section and thwarted all the plans. The necessity had arisen to select a more favorable place, and it was Goethe who thought of having the festivities held on a higher-situated location. In close proximity to his rocky scenery was a grove of splendid old ash trees, and here, beneath the lofty crowns, an oval space was leveled; and, adjoining, after designs of the poet, a hermitage was built, consisting of one medium-sized room. Roofed with straw and its wooden walls overclad with green moss, the quaint little structure was completed, in three days and three nights, without a soul at court or in town knowing of its existence. Now Goethe and a circle of congenial friends, disguised as monks in white cowls, invited the court to be the guests of the cloister. The latter, on July 9th, in responding, was received by the patres at the rock-scene, where a humoristic dramolet, written by court-

CLOISTER IN PARK OF WEIMAR.

chamberlain von Seckendorf, was recited. A dialogue of the monks followed, in the course of which the pater provisioner and the pater kitchen-master regretted that the cloister was only poorly provided and the space accommodation appeared very limited, but, at the advanced hour of 2 o'clock, the meal was waiting; in consequence the guests were ushered in. Walking in through the front door, the latter beheld, on a rustic table covered with a plain white cloth, "eine Bier-Kaltschale," and around, a number of earthen plates and tin spoons. Seeing the slim preparations and the inadequateness of the room, no one knew what it meant, and the lady of the ceremonies, Countess Gianini, began turning up her nose.

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At this juncture Goethe, as *pater decorator*, announced, "Your Excellency, the place has been chosen; pray let us go." The same instant, the back door opened and here, amid the green of the old ash trees, an entirely dfferent scene presented itself. A princely-set table was waiting, and, out from the nearby thickets, the delightful strains of a symphony offered the welcome, while a hurriedly-built cascade, with its clear water, further enlivened a picture that, perfect in itself, did not lack the bright, cheerful and romantic color. One was apt to feel as being far away while yet at home.

At this festival, the Dowager Duchess Anna Amalie had not partaken, being absent on a visiting tour in Frankfort-on-the-Main and along the beautiful Rhine. On her return, Goethe invited the amiable lady into his garden to regale her with all his latest poems; and, on the evening of the 22d of August, 1778, Amalie, Wieland, von Einsidel, Goethe and Frau von Stein dined together within the "lovely hermitage," hereby vividly remembering Goethe's mother, "the dear Frau Aja," whom the Duchess had seen, while in Frankfort. On leaving, when the door opened,—prearranged by Goethe,—the party was confronted by a most fascinating and bewitching surprise. Down below, the whole shore of the Ilm was illuminated in Rembrandt fashion,—a picture resembling more a realized poetical vision than a natural scene. The general effect of this wonderful mixture of light and darkness was simply indescribable. While descending the little stair and walking along the woods, the whole vision, to the profound sorrow of the enraptured onlookers, gradually vanished.

Of all the participants of those festive events, no one loved the primitive little cloister more than Karl August himself. Under his and Goethe's care, the rustic structure was more comfortably furnished, and the outside walls received a covering of tree-bark. This "Borken-Häuschen," as it was named henceforth, served for many seasons as a summer dwelling of the young Duke. Here, at the early morning hour, he conferred with his councilors; here, amid the dark green of the trees, he dined alone, or together with his friend Goethe, who came across the river and meadow from his own little garden-house. At night, he often went down into the Ilm to take a bath, and afterwards slept in the plain hut.

Meanwhile, the development of the new park, under the direction of the young poet, steadily progressed and gradually extended all along the sloping part of the banks in the direction of Ober-Weimar, absorbing, also, the parade grounds. Only the old Italian garden, with the "Schnecke"—the latter a wooden, vine-overspun, tower-like observatory—still remained, being a favorite pleasure resort for the town-folks, who, on summer Sundays, while enjoying the concert, were promenading up and down the straight walks, or delighted in the view over the city and vicinity from the top platform of the Schnecke. But, in the lapse of years the old tower became unsafe; its ultimate fall was also the beginning of the remodeling of its old-fashioned surroundings, which subsequently became part of the new park. Prompted by his noble liberality, Duke Karl August opened the whole park to the public, thereby making the grounds the property of his people and their posterity.

As a special ornament for the location formerly the Italian garden, a gothic, chapel-like hall was erected, which, owing to the old statues of ancient knights decorating its outside corners, received the name "Tempel-Herrenhaus." Its spacious salon was frequently used by Duchess Louise for holding tea-parties.

We have left Goethe at his gentle meandering walks along the murmuring river. On one of the most beautiful spots of his creation, the poet, in memory of a joyous journey with Karl August, to Switzerland, intended to erect a monument as a token of gratitude, dedicated to Good Fortune. This idea was not carried out, but on the assignment of a place the park received a still more beautiful ornament in the shape of an antique altar. According to the symbols of Virgil's poetry, a snake encircles the stone, taking part of the bread placed upon the altar, which bears the inscription, *Genio hujus loki* (to the genius of this location).

In 1782, Goethe made up his mind to let the rocks speak, or, in other words, to adorn his garden and the Duke's park with verses, after the rhythmic metre of the ancient Greek epigrams. Thus originated the rock-inscription, which we find on an exceptionally romantic turn, along the lower river walk. It is a touching entreaty to the nymphs of the woods, chiseled into a natural rock wall, in the deep shade of trees. There is none that can with-

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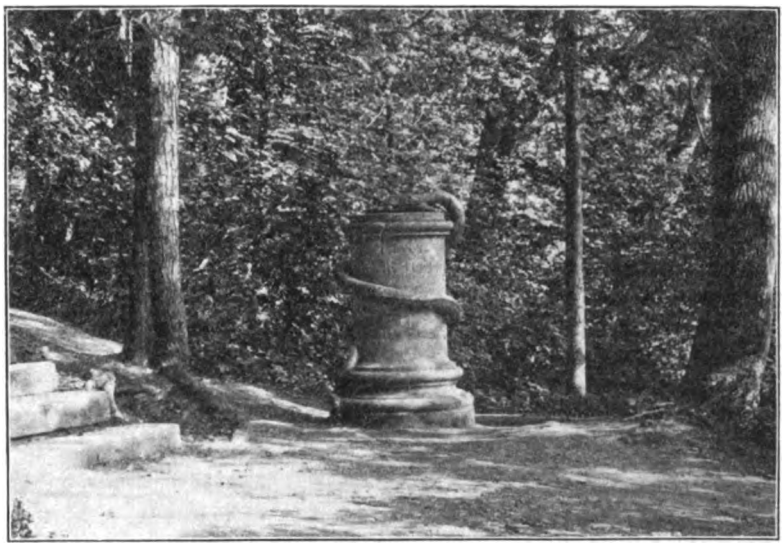
stand the infinitely poetic charm, which is intensified by the fitness of the surroundings, when reading the lines :

"O ye kindly nymphs, who dwell 'mongst the rocks and the thickets,
Grant unto each whatsoe'er he may in silence desire ;
Comfort impart to the mourner, and give to the doubter instruction,
And let the lover rejoice, finding the bliss that he craves.
For from the gods ye received what they ever denied unto mortals,
Power to comfort and aid all who in you may confide."

[Translated from the original.]

Ten years later, the Duke, for his personal use, decided to build a Roman villa, and he selected, as site for it, the location above the poet's epigram. In his absence, he wrote to Goethe, who acted as architect: "Do just as though you were building for yourself; our tastes have always been alike."



ANCIENT ALTAR IN PARK OF WEIMAR.

The simple structure was plainly but comfortably furnished. From its southerly window one enjoys a beautiful view up to Belvedere castle ; while east, the eye may wander over crowns of trees across the green meadows and fields of the Ilm Valley.

Karl August used the Roman house as a *Buen Retiro* up to his death. Here, amid the trees of his park, on the 3d of September, 1825, the celebration of his golden jubilee took place ; here, at the earliest morning hour of this festive day, his faithful friend Goethe called, as the first to congratulate, hereby reminding the prince of the long by-gone happy days of Tiefurt. In front of this humble edifice, a few hours afterward, the cheerful strains of the special jubilee cantata rung up into the morning air, while the echo out of the woods around faintly replied, and the throngs of people were silently watching the entrance. And here burst forth aloud all the heartfelt affection of his loyal people, when Grand Duke Karl August's stately figure stood between the white columns of the Roman house to receive the congratulations of his beloved Weimarians. But only three brief years had passed when, on the 21st of June, 1828, we see a sombre procession slowly moving through the park in the direction of the same house. Here, while the death-knells were ringing from the church towers of Weimar, the same people carried the lifeless body of Karl August into his *Buen Retiro*, for temporary rest.

More than a full century has passed since Goethe and Karl August moulded the landscape of the park of Weimar, and it is well to say that the master-hand of the great reformer of the German landscape art, Prince Pueckler, completed and rounded up their work. Nevertheless, the park in its essentials bears to-day still the characteristic stamp of Goethe. And more yet, what once was tenderly entrusted to the soil by the hands of poets and philosophers has now grown up and developed to its full beauty—a beauty which, by its perfection, has become an inexhaustive source of pleasure to the eye of the cultured lover of free nature. When following the drives and walks—the mute guides through this vegetation—we are impressed by the loveliness and the beautiful and harmonious alternation of its scenes and vistas as they pass before us. There is nothing of the manufactured aspects so often met with

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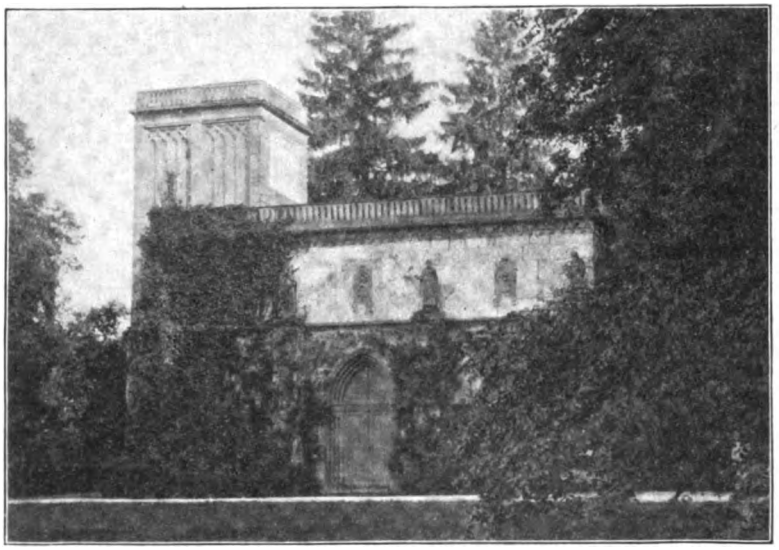
everywhere, and whatever we find of architecture is well and thoughtfully placed. But if we are fully to become aware of the poetical charm of this verdant creation of Goethe, let us, in accordance with poet Wieland's advice, choose for a stroll a bright spring night, when the lilac fills the atmosphere with its fragrance, and the nightingales woo and love. Bathed in the radiant light of the full moon stands the forsaken Roman house; gentle spring breezes now and then glide caressingly over it and vanish and meet again down in the dim of the woods, playing around the quiet, dreamy little cloister, where, in the silence of night, a few rays of light leap about in a will-o'-the-wisp-like dance. From yonder, across river and meadow, through the tall, slender trunks of trees, peeps the garden-house of Goethe, its moonlit contours in sharp contrast with its high, dark background. We hear the low prattles of the Ilm and listen to the mystic whisperings of the leaves. Old, intimate stories they tell us of a young prince who, surrounded by poets and philosophers, designed, planted and loved with them this beautiful piece of free nature, and made it the charming birthplace of Goethe's park of Weimar.



TEMPEL-HERRENHAUS IN PARK OF WEIMAR.

poems,—the elysium

RICHARD ROTHE.

Sunset, Laverock, Pa.

HISTORY OF THE FLOWERS AND FERNS OF THE UNITED STATES.—It is not until the tree has grown, and its handsome proportions are in evidence before us, that we are curious to know something of the seed which bore it. It is a fact like this that makes history so unreliable. The importance of an event is not apparent until its origin is lost. Noting a picture of David Landreth, recently, suggests the note that the starting of the "Native Flowers and Ferns of the United States," of which the frontispiece and chapter in each MEEHANS' MONTHLY is a continuation, was due to David Landreth. When Louis Prang made his beautiful exhibit of chromo-lithography, at the American Centennial, 1876, he urged on Mr. Prang the value of such a work, and arranged with this gentleman the meeting between him and Mr. Meehan for the establishment of the work. David Landreth did more for American gardening, in the early part of our history as a nation, than he has been credited with. His nursery and seed business was established in Philadelphia in 1784. Its founder was David Landreth, born 1752, near Berwick-on-Tweed, son of a Northumberland farmer who had, in England, applied himself to the business of tree-growing. He emigrated to Canada in 1781, shortly after removing to Philadelphia. About 1786 he associated his brother Cuthbert in the business of seed and tree culture. The first place of business was on High Street, the exact position now being covered by the buildings 1210 and 1212 Market Street, then a location well out in the country. Contiguous land was rented for nursery and seed-growing purposes, the largest section being a tract at the intersection of Twelfth and Filbert Streets.

The Federal Street nursery of rare trees and shrubs was still in existence when the writer of this paragraph came to Philadelphia, in 1848. Many a first-class gardener, leaving his native country and all ties of home and

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friendship to risk his fortunes in the New World, found a temporary foothold, in the good will of David Landreth, in the Federal Street nursery. The writer of this, encouraged by Robert Buist to settle in Philadelphia just as he had been before by David Landreth, took him to the exact spot in that nursery where he first struck the hoe in the ground at weed-killing, and felt that his youthful heart would break when he thought of his utter loneliness in a strange and distant land,—for distant it was, in those days, under a six weeks' sail!

These early grounds have given way under the march of brick and mortar; and gone are those who have had their early aid in advancing American gardening,—but it is a satisfaction to know that this old and honorable firm still lives, and that the early founder, if living, might still look with pride on the continuation of his work by his children.

FOREST FIRES.—"To prevent forest fires," is the title of two consecutive articles in a leading forestry journal. The first one shows that it is impossible to prevent forest fires, so long as large masses of dried underbrush are permitted to exist. Forest fires would be impossible if arrangements were made to keep woods clear of this inflammable matter. The next author tells how to prevent forest fires by insisting that all this amount of dead matter must be permitted to remain in order to be the receiver and retainer of the water that feeds the springs. But he fails to tell what becomes of this "receiver and retainer" when the forest fire has burned it out. This argument is in continual use,—but it seems strange to have the contention that the best way to prevent a forest fire is to encourage everything that favors it.

UNCOMMON NAMES.—I find the name of lysimachy for loose-strife thus far unrecorded in dictionaries.

Is gumbo-limbo, a West Indian and Florida name, a mere corruption of gum-elemi? Gumbo is a name of okra and of sassafras, and is the French *gombaud*. As to its ultimate source, there is much doubt. It seems certain that the name is a popular one and has reference to the gummy nature of the plant.

Are the names potato and *batatas* really of American origin? In a vocabulary of plant names, of a late fifteenth century date (Earle's "English Plant Names," p. 62), the beet is called *betate*.

I have some notes about the cerbas tree, a huge and doubtless fabulous tree of tropical America. Where can I find a good account of it?

What tree of Liberia is called hickory? Several books of reference speak of the hickory as growing there. It is well known that Sierra Leone has a so-called persimmon.

What tree is known as pepper-wood in the forests of northern California?

What is the botanical name of the Pine Moss which the people of Oregon feed to their cattle? C. W. GREENE.

JOHN JACOB BERNHARDI.—Of Bernhardi, the botanist, very little is known. He was born in Erfurt, Germany, in 1774,—but the date of his death is uncertain, though it is believed to have been about 1840. He is most famous for the magnificent herbarium he prepared, and which, under the advice of Dr. Engelmann, was purchased by the late Henry Shaw, of St. Louis,—and is the foundation of the now great herbarium of the St. Louis Botanic Garden, of which Prof. Wm. Trelease is the director.

GENERAL NOTES.

A RARE EXPOSITION OF FORESTRY, FISH AND GAME INTERESTS.—One of the most unique expositions in the history of forestry and allied interests is taking place in Philadelphia, and will continue till December 21st.

An attempt is made to bring the visitor in closer touch with realities not only in the abundant and varied exhibit of live game fish, game animals and birds, hunting appliances and hunters themselves, but in the naturalness of the surroundings. The interiors of some buildings will be arranged like an open forest; lakes and mountains will be reproduced, so one may imagine he is in the open, piney woods themselves.

The entire subject is sure to please the whole people, as it has little to do with technicalities. Naturally, the sportsmanship of man's nature will be most largely appealed to. Amusing features will be introduced by swimming, diving, and games to take place in the "open" lakes.

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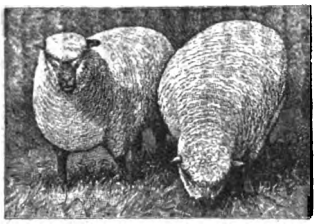

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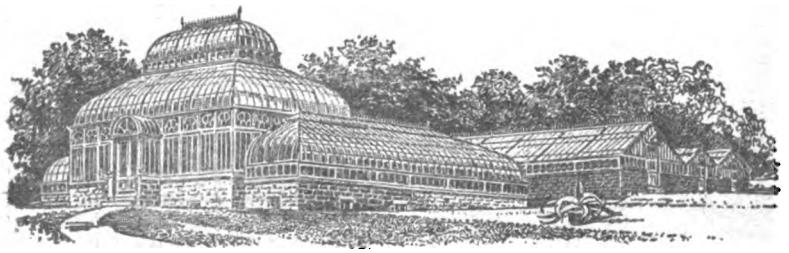

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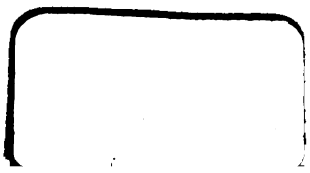

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